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HEPATIC INSUFFICIENCY IN OBSTETRIC PRACTICE.*

J. CLIFTON EDGAR, M.D.

NEW YORK.

Notwithstanding the indifference of some and the antagonism of others, there is no doubt that a belief in the existence of a special autointoxication of pregnancy is rapidly gaining ground among obstetricians, pathologists and others whose attention is being especially directed to this subject. The more one studies this subject the more one is inclined to believe in the existence of such a condition, and already many obscure points in obstetrics are being made clear by this doctrine.

Although the literature is already very large—for it dates far back beyond the adoption of the term "toxemia of pregnancy"—the subject is still in its infancy, and many phases are as yet untouched.[1]

We all know that in prescientific days puerperal morbidity and mortality were fearfully common, and were largely ascribed to some specific cause, whether contagious or not. In other words, the various phases of puerperal morbidity, while differing much from one another, were thought to possess something in common. Then came the study of bacteriology, the introduction of asepsis, and the wiping out of the worst types of puerperal disease. It eventually became almost a reproach to have a patient or a hospital service in which sepsis was a factor; and, as a result, we find the accounts of puerperal morbidity in our text-books of the last decade extremely meager, and founded oftentimes rather on traditional accounts than on a study of many contemporaneous cases. Plenty of sepsis still occurs, but it is scattered. Much originates in the practice of midwives, criminal abortionists and irresponsible practitioners and among unattended women; a certain amount occurs in maternities, despite all precautions; finally—and this point is of the greatest importance—many women die of sepsis which complicates other and severe forms of disease; and the cause of death is attributed to eclampsia, placenta previa or what not, rather than to sepsis.

In spite of the great reduction in mortality, it is generally admitted that there is a great deal of puerperal morbidity. The rationale of many cases is often extremely obscure, and the etiology given for particular cases may be far fetched. So great has been the faith in the efficacy of asepsis when properly carried out to prevent morbidity, that the latter has been ascribed largely to faulty technic. The recent demonstrations that potentially virulent germs are to be found in a majority of puerperal uteri has once more thrown the burden of causation back on predisposition.

PATHOLOGY OF GESTATION.

Gestation has generally been regarded as a physiologic process under all ordinary circumstances. The special pathology of gestation in reference to the puerperium has always been made up of a few conditions only. Leaving out of consideration certain maladies of genital origin (placental anomalies, etc.), it is confined to a single affection, to-wit, eclampsia, or rather the pre-eclamptic state. The woman with gestatory eclampsia is known to be strongly predisposed to sepsis, while in a woman who goes to term in the pre-eclamptic state we have to fear both postpartum eclampsia and the possibility of sepsis.

The influence of the accidents of labor on puerperal morbidity is, of course, well understood. The general breakdown of health which many women experience in the postpuerperal period of lactation, and which often seems to pave the way for actual diseased states, has generally been referred to the shock of labor, to the drain of lactation, or to the rousing to action of inborn tendencies; and never *per se* to any specific influence of gestation.

That sepsis could be due in any way to a specific autotoxic state (save perhaps in the case of eclampsia) has never been suggested until recent years.

This autotoxic state of pregnancy corresponds to functional incapacity or insufficiency of the liver; a condition sufficiently well known to require no special description here. We have only to bear in mind that the healthy liver renders the products of digestion and absorption suitable for assimilation, while it also disintoxicates both the products of intestinal putrefaction and the waste substances which result from katabolic activity. The results of hepatic insufficiency are largely synonymous with the symptoms of the autotoxic state.

So strong is the tendency at the present time toward unicism in respect to gestatory morbidity, as based on the existence of a basic autotoxic state, that a few obstetricians—and I confess that I take my stand in this minority—are inclined to regard all the severe and quasi-specific affections of pregnancy, such as hyperemesis, acute atrophy of the liver, eclampsia, polyneuritis, impetigo herpetiformis, and perhaps gestatory psychoses, as of common origin and closely related. Moreover, it is the conviction of this minority that very much of the minor morbidity—the gastric disorders, headache, alterations of character, pruritus, chloasma, ptyalism, etc.—can be referred to the same source.

* An address delivered before the Alumni Association of the Long Island College Hospital.

1. The entire study of the autotoxic state is much too extensive for review in the present paper. Those who care for a systematic and detailed account, I refer to the second edition of my "Practice of Obstetrics," in which the views of Prof. James Ewing are to be found, and also to Dr. W. S. Stone's paper in "American Gynecology."

I have had the opportunity in the last six months of examining the findings in as many autopsies on women who have died, during gestation, of the toxemia of pregnancy, as indicated by hepatic necrosis. Before death, the diagnosis in these cases was excessive vomiting of pregnancy, hysteria, etc. The teaching of the future will probably be that the autotoxic state of pregnancy exerts a notable influence on the genesis of sepsis. This is known to be true of the pre-eclamptic state, which is the nucleus of the modern doctrine of the special toxemia of gestation. It is also apparent that any toxic state *per se* furnishes a predisposition to sepsis. Thus, according to Vinay, when pregnant women are attacked by any of the acute infectious diseases which may terminate pregnancy, and the disease pursues its course during the puerperium, death often occurs from the complication of sepsis, even although the original malady was sufficient to produce death. Again, women often abort without any apparent reason, the abortion becoming septic.

It now appears very probable that puerperal polyneuritis, postpartum eclampsia, sudden death in the puerperium, puerperal psychoses, and, to a certain extent, much of puerperal sepsis are due to a common basic state, being all referable to gestatory toxemia which persists into the puerperium. In other words, all of the so-called puerperal morbidity, aside from hemorrhage and its effects, shock, birth traumatism and chance infection of any sort and from any source, stand in a close relation of kinship.

In like manner, those obscure conditions which arise in the postpuerperal period are set down by some authorities to injuries of the viscera received during gestation from the toxemia peculiar to that period. Thus, hepatic insufficiency may persist for months after delivery, the woman exhibiting the various stigmata of that condition. Permanent injury of the kidneys sometimes—although rarely—results from the kidney of pregnancy, the patient becoming a nephritic. Focal lesions of the spleen are believed to be responsible for part of the anemia and of the leukemia which follow maternity.

THE RESPONSIBILITY OF THE OBSTETRICIAN FROM THE STANDPOINT OF THIS NEW DOCTRINE.

In order to limit the length of a subject which may not carry with it the same intense interest to the general practitioner that it does to the obstetrician, I shall summarize what I believe to be the present status of the autotoxemia of pregnancy from the clinical standpoint.

If these statements can be proved, and they are sufficiently so to me, then the obstetrician of the future, yes, and of the present, has a new responsibility laid upon his already overburdened shoulders:

PREDISPOSITION.

First. Certain women show sufficient evidence of a predisposition to hepatic insufficiency as to render the occurrence of grave symptoms of toxemia, at the onset of pregnancy, a foregone conclusion.

Many of our patients evidently suffer from hepatic insufficiency. I see it almost daily in my practice. Possibly there is a family history of biliousness, and this will often show itself in the character of the pregnancies of the patient's immediate female relatives.

The teaching of Charcot was that hepatic insufficiency is pre-eminently an hereditary state.

A clear family history of this condition is often absent in a given patient, and yet her immediate family may suffer unduly during pregnancy or during the puerperium.

These patients have "bilious crises" in the non-pregnant state, and often suffer from temporary amenorrhea and at such times well-marked symptoms of mild autointoxication are present, as headaches, nausea, prostration, insomnia, pruritus, cutaneous eruptions, unexpected and sudden changes in tastes and disposition and slight jaundice.

If an examination of the intestinal functions shows any tendency to coprostasis, acholous feces, undigested fats, etc., it would naturally suggest hepatic insufficiency.

Urinary analysis furnishes perhaps our most valuable aid in determining the state of the functions of the liver, and shows the presence or absence of the so-called functional albuminuria, of glycosuria, of diminished amount of urea, of excess of purin bodies, of indican, etc. In this connection some of the hepatic functions may be tested dietetically.

The mental state, senses and reflexes should certainly be tested in suitable cases. It has often been claimed that the cerebral cortex, and, to a certain extent, the nervous centers in general, very readily participate in hepatic insufficiency. This is seen in a small way in the irritability and moodiness of the bilious individual, and exalted reflex excitability is doubtless of the same character. Of special importance is the relationship of the toxemia of pregnancy to hysteria, as seen in connection with hyperemesis. It is well, therefore, to examine the woman for the stigmata of this latter condition, which if present would certainly be aggravated by the toxemia of pregnancy.

If, after such an examination, we find marked evidences of hepatic insufficiency, which are believed to constitute a predisposition to the toxemia of pregnancy, are we justified in forbidding conception? This is largely a question for the future to decide. If all else is favorable, my present opinion is that it would be best to let conception occur, gestation being closely watched. We must remember that the mortality from the toxemia of pregnancy includes much—perhaps all—of that of pernicious vomiting, that of eclampsia, and perhaps a good deal of that of sepsis, together with the rarer conditions of death from fulminant toxemia, and some of the mysterious deaths which occur after the puerperium. To this array of fatalities must be added a very large immediate and remote morbidity. Hence, if the connection between insufficiency of the liver and the toxemia of pregnancy holds good in all countries and among all races, it is evident that the risk which such a woman runs by conception is very considerable, although the numerical chances are perhaps in her favor.

TREATMENT.

Second. If symptoms of toxemia show themselves in pregnancy, what shall be our attitude in the case?

It is well known that the mild evidences of toxemia as seen early in pregnancy generally subside before the fifth month, giving the impression that its condition is self-limited. During this period, however, the toxemia may result in acute hepatitis, in fatal pernicious vomiting, etc. An apparent subsidence of toxic symptoms should not throw us off our guard as to prognosis, because such a patient has been known to develop postpartum eclampsia. Under any and all circumstances during gestation it is well to submit the woman to certain tests.

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Any one can readily understand that the toxemia of pregnancy undergoes distinct exacerbations at the date of the menses, and the suspected patient should be carefully watched at this period. The urine should be tested, not only for the milder evidences of hepatic insufficiency but for the presence of leucin and amino-acids in general. The liver should be carefully examined for enlargement and for tenderness. The mental and nervous states should be investigated; then, if we examine the woman later, we can form some idea of the advance or recession of the disease.

At these times one will often observe languor in the patient, sometimes approaching stupor, general malaise, headache, constipation, itching of the skin, slight jaundice, nausea and vomiting, insomnia or somnolence, and alterations in character and disposition, with slight lapses of memory.

For the diagnosis of the milder forms of this condition, the presence of leucin and tyrosin and amino-acids in the urine is not essential.

Bearing in mind the claim of Richard C. Norris of Philadelphia, that the toxemia of pregnancy may be latent as to general symptoms, but may cause degenerative changes in the heart which cause death during labor, it is certainly well to pay some attention to that organ.

If the toxemia should attack the heart we should expect to find some acute dilatation, which in turn would doubtless set up passive congestion of the liver. A vicious circle would then involve the two organs, the mischief going on in one would aggravate the state of the other. The origin of the varicose veins of pregnancy, when not due directly to pressure, has always been obscure; it has been set down to pregnancy itself, or, as we would now say, to the toxemia of pregnancy. The presence of varicose veins early in gestation, when mechanical causes can be excluded, may possibly be of some value as an index of a cardiovascular toxemia.

It is well to watch for the normal enlargement of the thyroid during pregnancy, for, according to recent writings, when this does not take place, toxemia is prone to develop.

Evidences of progressive toxemia doubtless justify the interruption of pregnancy. They can only mean that the liver is undergoing structural disease, and that the chances, on the whole, are against the patient. If palpation reveals the presence of an enlarged and tender liver, if leucin is present in the urine, if the stomach and nervous system show considerable participation in the general derangement, we should empty the uterus at once; otherwise the patient will doubtless develop, sooner or later, one or more of the severe or terminal manifestations of the autotoxic state. It is not alone in the emptying of the uterus, however, that the treatment rests. During the past year I have known of four cases in which death resulted in spite of this procedure.

In the past year I have seen surprisingly good results, in my own practice and in the practices of others, from the administration of calomel, repeated colonic irrigation, venous saline infusion, and the general stimulation of the emunctories, but without interrupting the pregnancy.

If the case passes into one of ordinary hyperemesis, eclampsia, etc., the indications, prognosis, etc., are sufficiently well known and need not be discussed here.

PROGNOSIS IN FULL TERM CASES.

Third. What is the prognosis of cases of persistent pregnancy toxemia that we allow to proceed to full term?

There are a number of conditions under which a toxemic pregnancy may go on in safety to the period of delivery. The symptoms may have subsided spontaneously, or may have yielded to treatment; threatened eclampsia may have been averted by diet. Evidences of toxemia may have been slight or may have exhibited a diminishing tendency. The patient may not have been seen or the condition may have been unsuspected until term, or at least until the fetus was perfectly viable. Under such circumstances the obstetrician must bear in mind, first, that there is a possibility of death during or directly after labor, as a direct result of cardiac paralysis due to the autotoxic state. If there is any evidence which points to such a state of the cardiac muscle, the indication would be to hasten delivery. Our knowledge of sudden death in the puerperium hitherto has been cognizant only of such accidents as pulmonary embolism, air embolism, cardiac thrombosis, cerebral apoplexy and cardiac failure from antecedent organic disease, but doubtless will be revised from the viewpoint of the cardio-toxemia of pregnancy. Next to sudden death, the possibility of postpartum eclampsia must be borne in mind. If the trace of albumin which is said to persist in the great majority of puerpera for the first week after delivery shows increase, i. e., if postpartum albuminuria is in evidence to an unusual degree, there is reason to fear this accident—particularly in those cases which have shown the pre-eclamptic state during gestation.

Of even more interest is the subject of puerperal sepsis when viewed as a possible sequel or continuation of the toxemia of pregnancy. The nucleus of this doctrine is the proneness of the eclamptic woman to develop sepsis after delivery—the ratio being greater than may be accounted for by the need of operative intervention, etc., in such cases. Over and beyond this, however, we may almost generalize to the effect that in any toxemic state whatever during pregnancy the chances for a septic puerperium are much increased. This may be seen in connection with associated infection before delivery with typhoid and similar acute diseases, syphilis, cancer, etc. Antepartum infection with the ordinary germs of puerperal fever pursues a notably serious course after delivery.

It seems reasonable, then, to conclude that a toxemia peculiar to pregnancy is bound to end after delivery in an abnormal puerperium.

PROPHYLAXIS.

Fourth. If a woman has once gone through a toxemic pregnancy, how shall she be advised?

If the toxemia was severe in character—hyperemesis, eclampsia, etc.—subsequent conception should be discouraged, or at least left to the decision of the patient. In mild toxemia, the conditions are different. Generally speaking, conception may be permitted or advised, the pregnancy being carefully supervised. However, even in the milder forms of toxemia, too rapid child-bearing should be discouraged; my belief is that the slight toxemia which attends most pregnancies becomes cumulative if the woman be not given time to recover completely from the effects of the preceding gestation.

From another point of view, if a woman shows marked evidence of autotoxemia after a given pregnancy—irrespective of the character of the gestation—she should not conceive so long as such symptoms persist. Such a woman probably has residual lesions of some of the important viscera, and a fresh conception might precipitate toxemia of the worst type.

CONCLUSIONS.

1. The preventive treatment of much of the morbidity and mortality of pregnancy and of the puerperium depends on the early recognition of the autotoxemia of pregnancy, as it shows itself in the clinical picture of hepatic insufficiency.

2. No one who has had an extensive obstetric experience can fail to observe that a large number of pregnancies are really pathologic in their nature.

That a specific toxemia of pregnancy exists will probably soon be admitted on all sides. It is, of course, very easy to attribute to the autotoxic state certain symptoms of the pregnant woman which proceed from other sources; and it is by no means impossible that pregnancy may predispose to more than one toxic condition. In any case, however, the presence of the hepatic toxemia must be borne in mind—whether it be the principal state or accessory to other facts.

3. Our present knowledge of the pregnant state demands that women at this time should be constantly under the observation of a competent physician. Pregnancy can not be treated through the mails or over the telephone.

It is not enough that a monthly or bi-monthly examination of the urine be made for symptoms of hepatic or of renal insufficiency, as such urinary analysis often fails completely to indicate the presence of toxemia.

A pregnant woman should be seen frequently by her physician and watched for general symptoms of the overcharging of the blood with toxic material, such as nausea and vomiting, headache, physical and mental lassitude, high arterial tension, alterations in character and disposition.

Thus, and thus only, shall the physician do his whole duty by his patient.

50 East Thirty-fourth Street.

OCEAN BATHING.

PHILIP MARVEL, M.D.
ATLANTIC CITY, N. J.

In considering some of the advantages and disadvantages of sea bathing, one must not lose sight of the fact that it is impossible to separate them from the influences of other agencies, such as temperature and the physical conditions of the atmosphere. And, again, it is no less true that the physical and mental condition of the individual at the time of the bath may greatly modify or influence the effect. Sea water being composed of minerals such as chlorid of sodium, magnesium, bromin and iodin, is truly a mineral water, and an ocean bath, therefore, may be properly classified as a mineral bath. Since temperature is one of the agencies to be considered, we must not regard its presence or absence, beyond a relative degree, other than a definite quantity of either the water or the body. In nature's operations, heat and cold are as necessary as they are wonderful, whether contemplated from their effect on the human body, on animal life in general, or on inanimate matter. In the human body, heat and cold have only a relative action, and much depends on the particular state and condition of the body at the time, and the end to be subserved. They may be alike, first, salutary, and second, pernicious. I have observed those who for different reasons have been obliged to remain for hours submerged in the sea, and have noted both the slowing and the enfeeblement of the pulse, the lowering of the temperature, and the evidence of general debility as exhibited by the loss to the various forces. I have also observed with equal interest those immersed for a time in warm water at a temperature higher than that of the body. Here the first influence was that of the speeding of the blood current, the stimulation and invigoration of the motor centers, the increasing of the cellular and glandular activities, and, as the exposure was prolonged, secondarily, the depressing influences became so marked as to completely derange the equanimity between the capillary and larger circulations, limiting nerve force, and thereby lowering the systemic resistance to a greater or less degree. In the former, i. e., exposure to cold sea water, I have noticed the temperature lowered from 1 to 2 degrees, and at the same time the lessening of the pulse rate from 15 to 20 beats.

Dr. Gibbony, an English authority, states that in his observation "of flounder fishermen off the coast of Northern Ireland, and of the shrimp fishermen off the coast of Brighton, England, where their vocation compels them to be exposed in the water for many hours," the temperature of these waters being at least 10 degrees lower than that of the Atlantic ocean along our coast, he has noted the pulse as many as 30 beats less than normal, and the temperature reduced 2.5 degrees.

Hippocrates once advanced the theory "that subsequent heat, succeeding to the cold applied, was always proportionate to the intensity of the latter." While this may be to some extent concurred in, it is subject, both in health and in disease, to special modifications, which modifications arise more particularly from the length of time of the exposure and the conditions under which the exposure is made. Therefore, when considering the special benefits or the special diseases and conditions to be benefited, there are other agencies or influences which must be taken into account, such as, for instance, those relative to the sea, namely, the forcible activity or movement of the water, the physical conditions of the strand, the distance and convenience of the dressing rooms, etc., and those relating to the individual, namely, the resisting power of the body, the time of the bath, length of time of exposure, the temperament, the physical debility present—i. e., whether the body is relaxed, enervated, nervous, or highly tensioned; and also whether the result to be obtained should be bracing, tonic, stimulating and invigorating. In other words, the individual bather must be considered a complexity of forces or an aggregation of systems capable of independent as well as allied actions.

Beginning with a simple cell, with its inherent power, we can easily follow the force suggested until it expands into the various systems—the nervous, the vascular, the glandular and the muscular—each of which is easily influenced individually and collectively, incidentally and relatively, internally and externally.

But time does not permit of further elaboration or discussion of this phase of the subject, the important and principal phase being the behavior of these forces when met by the conditions, under varied circumstances, of the question as above stated.

It may not be out of place, for the sake of illustration, to consider the human body as a type of a perfect machine, constructed in a beautiful and wonderful manner, with its functions so intimately poised, so accurately organized, and so connected that none could be more perfect. Any deviation from this type is represented by disease, either functional or organic, and the severity of the derangement merely the degree.

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Assuming this to be our perfect machine, our type necessarily will be a youth representing vigor and perfect development. In the immersion of such an individual in sea water at a temperature of from 65 to 70 degrees, we would naturally find a quick response to the sudden stimulation of cold, that is, of the water, which meets the surface of the body as the plunge is taken. The stimulus to the peripheral sensory nervous system is such that it quickly contracts the adjacent capillaries and sends the blood speeding to the larger vessels and internal organs. The systemic vigor and reserve forces return it again to the surface of the body, accompanied by the resiliency and invigoration which emphasize the pleasurable sensations so gratifying to the bather.

If, after dressing from such a bath, a genial glow suffuses itself over the sensitive surface of the body and is succeeded by a pleasing warmth internally, accompanied by a refreshed and invigorated feeling, it is evidence and proof of the salutary influences; but if instead there follow a chilliness, languor, headache, irresistible depression and disposition to drowsiness, or any of these, it should be reckoned as important evidence that the bath has not contributed in any material way to the advantage or improvement of the person's health, and that, if persisted in under similar or like conditions, the result will in time prove injurious. So much depends on the vital power or reactionary influences which we may call the *callidum innatum*, which is constantly renewed by a most admirable combination of chemical agencies and animal functions, that, after considering the preliminary conditions previously stated, it becomes equally important for us to observe our patients and to impress on them the necessity of looking for the special reaction above stated, and when it is absent to desist further indulgence in so questionable a pleasure.

With these generalities and references, I now come to speak more specifically of the use of the bath and the special conditions and diseases for which it may be used. In the first place, I venture to make the statement that the sea or ocean bathing as practiced at Atlantic seacoast resorts is responsible for greater harm than good. Few people seem to attach much importance to the danger of either the prolonged exposure in the water or to the prolonged exposure in their wet garments in the cool atmosphere on the sand. While this seems a matter of easy remedy, particularly if a little good judgment and common sense be exercised, nevertheless the surprise is that the practice increases rather than diminishes. It may be said in advocacy of such a practice that the majority of bathers bathe for pleasure, with a blind disregard for either its advantages or disadvantages, and indulge themselves for such periods of time as either their own or their friends' convenience permit.

Admitting the truth of this claim, there does not yet seem to be any good reason why the seeking of pleasure should be an apology for the violation of the laws of health; and too often the physical condition present, which may be giving them great concern, adds little alarm to the occasion.

Many of us have stood on the strand and observed not a few but many young, middle-aged and old alike returning from the surf, or from a prolonged exposure in their wet clothing on the sand, to their dressing rooms, slightly and even markedly cyanosed, with pale and shriveled cutaneous surfaces, capillaries contracted, cutaneous functions temporarily paralyzed, internal organs and deeper vascular system greatly engorged, and in some instances seriously disturbed, shivering and chattering as they pass, giving little thought to the threatening dangers incidental to the impaired forces and debility occasioned by the exposure.

In view of these observations it would seem that our voices have already been too long silent and our pens too inactive on the subject so universally abused. Each physician should counsel those over whom he has advisory charge, of the dangers incident to a prolonged exposure in the ocean or on the sand in wet clothing, and also to the too frequent daily indulgence of either. It is his duty to impress on them the advantages of a short exposure or immersion, say ten, fifteen or twenty minutes, and never exceeding thirty minutes; the necessity of prompt and positive reaction after the bath; the maintaining of a good physical condition, and giving to them, according to their particular need, such specific instruction as will best avert harmful or serious disturbances. When the normal body temperature is exposed to that of an active body of water, or currents of air 10, 20, 30 or 40 degrees lower than itself, the tendency is to the equalization of the temperature of the bodies in contact, and the greater the motion of these bodies the more rapid the transfer, and the more rapid the receipt and loss to the bodies involved; hence, prolonged contact largely reduces the former, while it adds but little to the latter. The body during this large dissipation of heat becomes so enfeebled that its economic forces are temporarily inhibited, and in some instances seriously deranged. While such general disturbances may be frequently observed in the healthy and normally robust, it much more frequently occurs in those of less resistance, therefore the necessity for greater precaution in giving advice, and making recommendations to those whose health has already suffered impairment.

The practice of promenading on the beach in the scant and poorly protecting garments so fashionable of recent years—I pause to emphasize the word "fashionable"—after an immersion from, say, three-quarters to an hour in the surf, is unmistakably harmful and equally inexcusable, and should have the denunciation of every physician as well as others engaged in the upbuilding and maintenance of good health; and there is little less to be said in favor of the practice of lying on the sand and frequently returning to the water, which practice so changes the temperature of the body as to invite lowering of resistance, and thus rapidly insures progressive debility.

An important feature in sea bathing which must not be lost sight of is the active motion of the water—i. e., the impact of the swells or waves; to this may be added the thermic stimulation of the cold, the chemical irritation of the salt, and the mechanical influence of the forced activity, thus giving a marked nerve stimulation and an energetic primary vascular contraction and subsequent reaction. Hence, when summarily considered, we must recognize that a tremendous impetus is given the fluids of the body, an incidental active alteration in the various forces, also a modification direct and indirect to the reflex activities. The cold sea bath combines the stimulating influences of the brine bath at a low temperature with the effect of a stimulating hydrotherapeutic procedure. They are admirable for rapid reaction and prompt functional stimulation, and are indicated in those weakened conditions where normal metabolism is inhibited, or where perverted nutrition exist. Such conditions are present usually in all functional disturbances of long standing, types of which

are neurotic dyspepsias, the functional anemias and neuralgias, neurasthenia, and some cutaneous diseases, as eczema in the subacute and chronic forms, pityriasis, urticaria, etc.

Sea bathing is contraindicated in those cases in which the arterial elasticity for any reason has been changed or lost, as in arteriosclerosis and capillary fibroses; also where the peripheral vessels have ceased to respond to reflex stimuli, or in any case or condition in which the stimulation of the bath would be likely to favor or to produce internal hemorrhage (particularly in the aged, in whom we have realized or suspected fragile arteries), and for those with organic heart disease, recent rheumatism, cholelithiasis, acute gastrointestinal or febrile diseases, or any disease whatsoever in which the normal resistance has been so reduced as to make it necessary to protect and guard the patient's forces.

Miscarriage may be caused by bathing when the sea is particularly rough. Sea bathing is also prejudicial to health during the menstrual period. It is worthy of note that otitis media frequently follows bathing in a rough sea, as well as frequent and prolonged exposure in the water.

HOW MAY TYPHOID FEVER BE ELIMINATED?*

A. ROBIN, M.D.
Bacteriologist to the City Water Department.
WILMINGTON, DEL.

The eradication of a given infectious disease requires an intimate knowledge of first, the causation or underlying etiologic factors, and second, the best methods of preventing these factors from operating.

While very desirable, it is not absolutely necessary for purposes of prevention to know the specific cause of the infectious disease to be combated; it is sufficient to know the ways and means by which the specific cause, whatever it be, becomes operative. Thus smallpox may be prevented without the specific cause being known, and the prevention of yellow fever is an accomplished fact, although the specific cause still remains hidden from the searching eye of the bacteriologist. These general considerations prepare us for the statement that although the specific cause of typhoid fever—the bacillus of Eberth and Gaffky—has seldom, if ever, been found in polluted water; such water, nevertheless, has been the cause of typhoid epidemics, and the prevention of such epidemics can be accomplished by removing the source of infection. The failure to discover the typhoid bacillus in water which had given rise to typhoid infection is, from a strictly bacteriologic standpoint, tantamount to failure to establish the presence of such specific cause, and were we to rely on bacteriologic evidence alone, typhoid fever could not be considered a "water-borne" disease.

From a strictly scientific point of view, a mere inference should not be accorded the value of an established fact, and, therefore, a mere supposition that typhoid bacilli may be present in sewage-polluted water does not or should not mean that the presence of these bacteria has been actually demonstrated. However polluted a water supply may be, it may, nevertheless, be free from typhoid bacilli, and, on the other hand, typhoid bacilli may be present in water which, on examination, does not reveal the presence of sewage pollution.

Bacteriology with its modern technic traces the typhoid bacillus from the time it enters the human body until it leaves the latter with the feces or urine, but utterly fails to enlighten us on the life-history of this micro-organism outside the body. The behavior of this bacillus in large bodies of water under natural conditions is a blank to be filled in by further investigations, but a blank, nevertheless, which at present constitutes the missing link in the chain of evidence that polluted water causes typhoid fever.

Fortunately, however, the evidence furnished by epidemiology is all sufficient to satisfy the most skeptical. We know that polluted water gives rise to epidemics of typhoid fever because: 1, Epidemics have been traced to the contamination of the drinking water with the fecal discharges of a single typhoid patient, as in the classical outbreak at Plymouth, Pa., in 1885, following the pollution of the stream with typhoid feces; 2, typhoid morbidity bears a direct relation to the character of the water supply; and 3, high typhoid morbidity in communities supplied with sewage-laden water diminishes on the introduction of a pure water-supply or the effectual purification of the old. These facts have been verified by years of observations by competent sanitarians.

STATISTICS OF TYPHOID.

It is interesting to note that as early as 1843, when the etiology of typhoid fever was obscure, the late Austin Flint traced an outbreak of typhoid fever in North Boston to the contamination of a well. In this outbreak the infection was introduced into a small settlement by a traveling stranger who, while sick, stopped at a tavern where he died of the disease. The well at the inn became contaminated with the dejecta, and all of the nine families constituting the settlement, except three, developed typhoid fever. The families that escaped did not use the water from this well; two because of distance, and the third on account of a quarrel with the innkeeper. From a careful analysis of the circumstances in this outbreak, Dr. Flint drew the correct conclusion that the drinking water and that alone was accountable for the outbreak. Numerous observations of a similar character have been made since, and all without exception prove that contaminated drinking water is the most frequent causal factor in the production of typhoid fever.

That the mortality from typhoid fever bears a direct relation to the hygienic quality of the water-supply is shown by the typhoid death rate in American cities, which are usually supplied with polluted water. The following table shows graphically this relation.

This table shows that where a polluted stream is utilized as a water-supply the typhoid mortality is high and in proportion to the care exercised in guarding the stream against evident pollution. Thus in the states of Massachusetts and New York, where exceptionally good care is taken in this respect, the typhoid mortality is comparatively low, while in Pennsylvania, where streams used for drinking purposes are also used as sewers, the mortality is high. Another interesting and rather unexpected fact brought out is that in many cities supplied with artesian well water obtained at great depths, the death rate from typhoid fever is nevertheless high, as in Canton, Ohio, 40; Charleston, S. C., 122; Galveston, Texas, 67; Memphis, Tenn., 33; Montgomery, Ala., 54; San Antonio, Texas, 67; Sa-

* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

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vannah, Ga., 34; and South Bend, Ind., 35. It is difficult to find an explanation for this rather startling fact, considering the extreme depths at which the water is obtained. It is possible that owing to the limited supply in some places and the extreme hardness of the water in others, the people avail themselves of shallow wells on their own premises. However, whatever the explanation, the fact remains that artesian wells do not afford the immunity from typhoid fever one would *a priori* expect. This is equally true of springs and mountain streams, as shown by the typhoid mortality in Los Angeles, 43; Mobile, 62, and York, 83. This, however, should not occasion much surprise since springs and mountain streams, although by popular consent the very emblems of purity, may become the conveyors of disease when located in populous communities.

That this wanton destruction of human lives can be almost entirely eradicated is conclusively shown by the experience of European cities where the substitution of a pure water-supply for a polluted one or filtration of a polluted water has resulted in such a marked reduction in typhoid morbidity that, as is the case in Munich, the medical schools suffer for lack of morbid material to demonstrate the lesions of typhoid fever. Thus the typhoid mortality in Munich, from 1851 to 1874, was 170 per 100,000, reaching as high as 210 per 100,000 during 1851-59. The introduction of a pure water-supply reduced the mortality to 6 and as low as 3 (1892) per 100,000. An equally marked reduction was brought about by an improved supply in Dantzic, from 100 to 24 per 100,000; in Frankfort, from 60 to 15; in Vienna, from 120 to 6; in Brussels, from 100 to 37, and others. In this country a similar reduction in the typhoid mortality followed the introduction of a pure water-supply, as in Boston, where the death rate of 174 in 1846-49 was decreased to 30 per 100,000 for the period covered by the above table. In the case cited by John W. Hill, the cities of Jersey City and Newark, N. J., were for many years drawing their water from the badly polluted Passaic River with the resulting high typhoid mortality. In 1892, Newark abandoned the old supply in favor of Pequannock River, while Jersey City continued to draw from the Passaic. The effect of this change on the comparative typhoid mortality of both cities is shown in the following table:

DEATH RATE PER 100,000.

	1890	1891	1892	1893	1894	1895	1896
Newark, N. J.	60	81	45	28	15	17	21
Jersey City, N. J.	91	95	53	60	76	71	61

An equally marked reduction followed the introduction of slow sand filtration of polluted surface waters, as shown by the statistics of Hamburg, Berlin, Breslau, Bremen, London and some thirty or more European cities, and in this country, in Lawrence and Albany.

PROPHYLAXIS OF TYPHOID.

Having demonstrated the propositions set forth in the beginning of this paper, we are now ready for the inquiry into the best means of preventing this scourge. Prophylaxis in the case of typhoid infection may be individual or domestic and collective or municipal.

Domestic Prophylaxis.—Individual prophylaxis embraces avoidance of contact in any way with the feces and urine of typhoid patients and the avoidance of ingestion of food and drink which is liable to contain the typhoid bacillus. Practically, domestic prophylaxis is limited to the boiling or filtering of the drinking water. As a general rule, boiling of the water is carried on sporadically and only in times of a general scare, while domestic filtration is frequently the means of conveying infection rather than guarding against it.

The market is overcrowded with all sorts of filtering devices, for each of which it is claimed that it will purify water, but many of them are only capable of removing the turbidity. As a rule, the desire on the part of the manufacturers to make their filters attractive and unique (patentable) results in the production of complex devices which are difficult to clean and to keep clean. Even the best of them—the Pasteur and Chamberland filters—require frequent cleansing and sterilizing to make them at all efficient. As no nitrification takes place in the small filters, and they are merely strainers of various degrees of fineness, it is only a question of time, not more than four days, when the bacteria grow through the body of the filter. The care of domestic filters is usually entrusted to domestics, with the result that the filter undergoes an occasional ablution without any further treatment, if, indeed, it is not left to its own fate until no longer permeable to water.

The inefficiency of domestic filters has been clearly demonstrated by a number of competent bacteriologists. During a typhoid epidemic in Providence, R. I., in 1888, it was found that a large number of cases occurred in families using domestic filters. These filters were examined by Drs. Swarts, Pruden and Ernst, with the result that *B. coli communis* was found in the effluent from every one of them.

Even if proper precautions are taken with the drinking water, raw water is used in washing vegetables which are not subject to subsequent cooking, and milk is used without boiling, such milk being liable to contain the germs of typhoid fever. That milk which had come in contact with utensils washed with polluted water or which had been diluted with such water may and does give rise to typhoid epidemics, has been proved by a number of investigators, and was shown by the milk epidemic at Elkton some three years ago, which was so ably investigated by Dr. Fulton. Oysters obtained from a sewage-polluted bed are frequently the cause of typhoid infection, while flies which had been permitted to come in contact with dejecta from typhoid patients and then alight on food are no doubt responsible for a considerable number of sporadic cases of obscure origin. In short, individual prophylaxis to be effective should not fall short of boiling all articles of food and drink which are liable to be a source of infection.

Municipal Prophylaxis.—Experienced sanitarians are only too painfully aware of the fact that individual prophylaxis against infectious diseases is a profitable subject to write about and to discuss, but which can not be carried out in actual practice. All wise rules and regulations become ineffective when confronted by ignorance or stubborn indifference on the part of those for whom the rules are intended. There is a peculiar state of the human mind which renders caution unheeded. The average man does not expect to die nor to get sick nor to meet with an accident. He can reason, and the more intelligent man does reason out the possibility of such occurrences, but his being rebels against such a possibility, and the knowledge of such possibility does not become an integral part of conscious life. The average man, when in perfect health, does not think of disease nor of death, and always hopes to escape the misfortunes which he may happen to see oc-

TABLE I.

Typhoid Mortality in American Cities of 30,000 and over for 1898, 1899 and 1900. Average per 100,000.
(Dotted lines show mortality for 1890-1896 in some of the larger cities.)

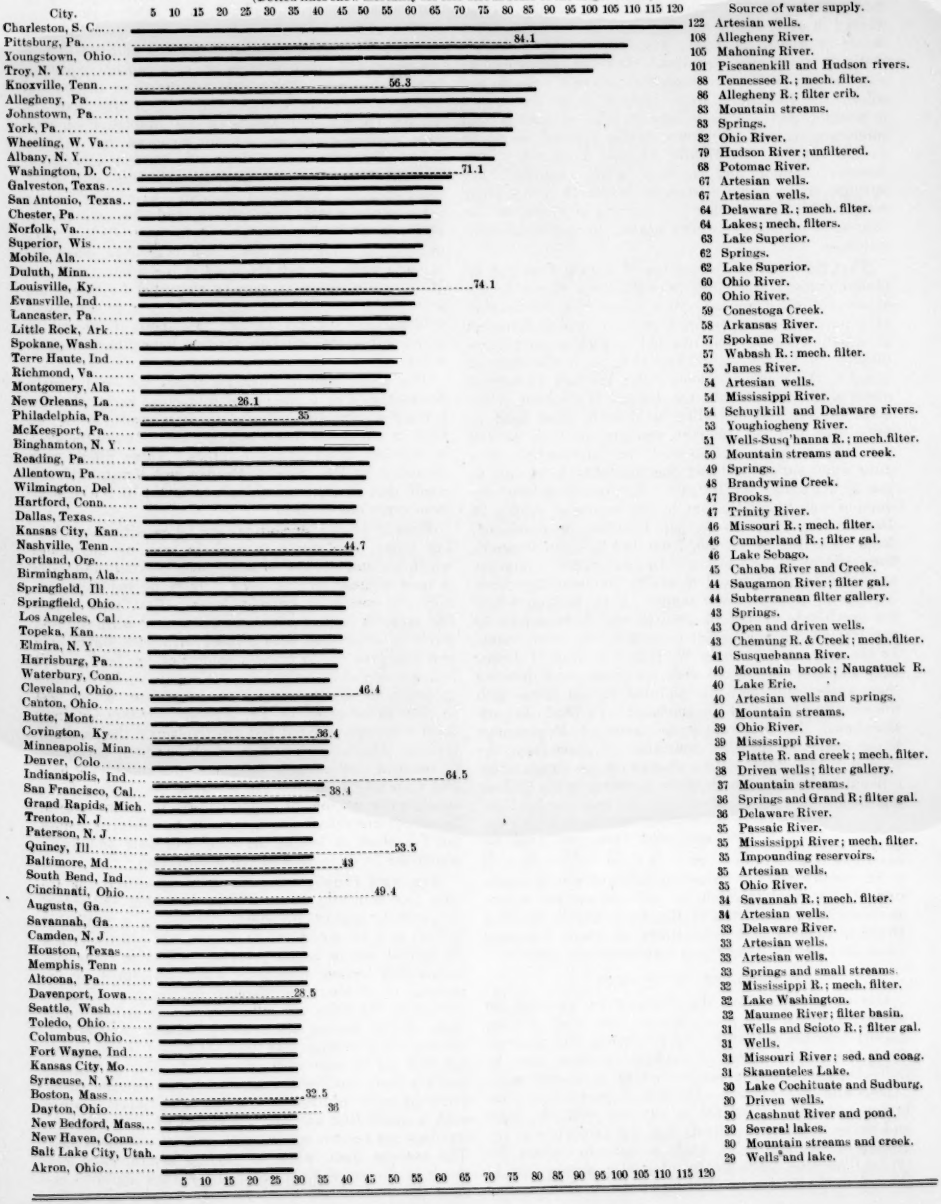
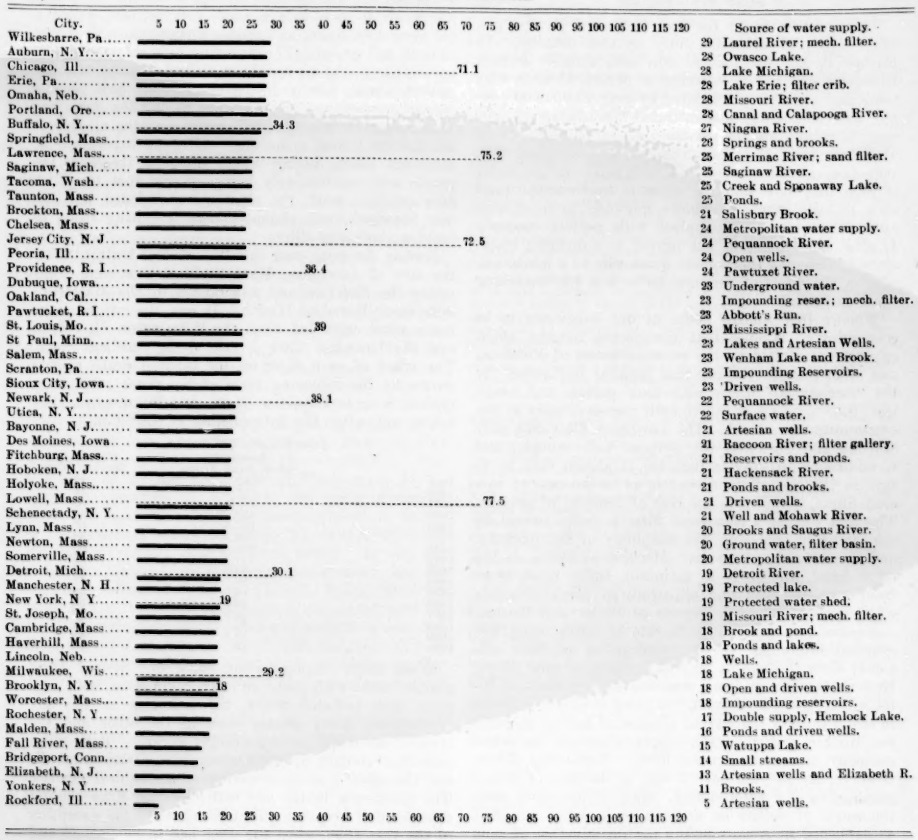

City.
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120
Source of water supply.
Charleston, S. C. 122 Artesian wells.
Pittsburg, Pa. 84.1 108 Allegheny River.
Youngstown, Ohio 105 Mahoning River.
Troy, N. Y. 101 Piscanenkill and Hudson rivers.
Knoxville, Tenn. 56.3 88 Tennessee R.; mech. filter.
Allegheny, Pa. 86 Allegheny R.; filter crib.
Johnstown, Pa. 83 Mountain streams.
York, Pa. 83 Springs.
Wheeling, W. Va. 82 Ohio River.
Albany, N. Y. 79 Hudson River; unfiltered.
Washington, D. C. 71.1 68 Potomac River.
Galveston, Texas 67 Artesian wells.
San Antonio, Texas 67 Artesian wells.
Chester, Pa. 64 Delaware R.; mech. filter.
Norfolk, Va. 64 Lakes; mech. filters.
Superior, Wis. 63 Lake Superior.
Mobile, Ala. 62 Springs.
Duluth, Minn. 62 Lake Superior.
Louisville, Ky. 74.1 60 Ohio River.
Evansville, Ind. 60 Ohio River.
Lancaster, Pa. 59 Conestoga Creek.
Little Rock, Ark. 58 Arkansas River.
Spokane, Wash. 57 Spokane River.
Terre Haute, Ind. 57 Wabash R.: mech. filter.
Richmond, Va. 55 James River.
Montgomery, Ala. 54 Artesian wells.
New Orleans, La. 26.1 54 Mississippi River.
Philadelphia, Pa. 35 54 Schuylkill and Delaware rivers.
McKeesport, Pa. 53 Youghiogheny River.
Binghamton, N. Y. 51 Wells-Susq'hanna R.; mech.filter.
Reading, Pa. 50 Mountain streams and creek.
Allentown, Pa. 49 Springs.
Wilmington, Del. 48 Brandywine Creek.
Hartford, Conn. 47 Brooks.
Dallas, Texas. 47 Trinity River.
Kansas City, Kan. 46 Missouri R.; mech. filter.
Nashville, Tenn. 44.7 46 Cumberland R.; filter gal.
Portland, Ore. 46 Lake Sebago.
Birmingham, Ala. 45 Cahaba River and Creek.
Springfield, Ill. 44 Saugamon River; filter gal.
Springfield, Ohio. 44 Subterranean filter gallery.
Los Angeles, Cal. 43 Springs.
Topeka, Kan. 43 Open and driven wells.
Elmira, N. Y. 43 Chemung R. & Creek; mech.filter.
Harrisburg, Pa. 41 Susquehanna River.
Waterbury, Conn. 40 Mountain brook; Naugatuck R.
Cleveland, Ohio. 46.4 40 Lake Erie.
Canton, Ohio. 40 Artesian wells and springs.
Butte, Mont. 40 Mountain streams.
Covington, Ky. 36.4 39 Ohio River.
Minneapolis, Minn. 39 Mississippi River.
Denver, Colo. 38 Platte R. and creek; mech. filter.
Indianapolis, Ind. 64.5 38 Driven wells; filter gallery.
San Francisco, Cal. 38.4 37 Mountain streams.
Grand Rapids, Mich. 36 Springs and Grand R; filter gal.
Trenton, N. J. 36 Delaware River.
Paterson, N. J. 35 Passaic River.
Quincy, Ill. 53.5 35 Mississippi River; mech. filter.
Baltimore, Md. 43 35 Impounding reservoirs.
South Bend, Ind. 35 Artesian wells.
Cincinnati, Ohio. 49.4 33 Ohio River.
Augusta, Ga. 34 Savannah R.; mech. filter.
Savannah, Ga. 34 Artesian wells.
Camden, N. J. 33 Delaware River.
Houston, Texas. 33 Artesian wells.
Memphis, Tenn. 33 Artesian wells.
Altoona, Pa. 33 Springs and small streams.
Davenport, Iowa. 28.5 32 Mississippi R.; mech. filter.
Seattle, Wash. 32 Lake Washington.
Toledo, Ohio. 32 Maumee River; filter basin.
Columbus, Ohio. 31 Wells and Scioto R.; filter gal.
Fort Wayne, Ind. 31 Wells.
Kansas City, Mo. 31 Missouri River; sed. and coag.
Syracuse, N. Y. 31 Skaneateles Lake.
Boston, Mass. 32.5 30 Lake Cochituate and Sudbury.
Dayton, Ohio. 36 30 Driven wells.
New Bedford, Mass. 30 Acashnut River and pond.
New Haven, Conn. 30 Several lakes.
Salt Lake City, Utah. 30 Mountain streams and creek.
Akron, Ohio. 29 Wells and lake.
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120

TABLE 1.—Continued.


City.
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120
Source of water supply.
Wilkesbarre, Pa. 29 Laurel River; mech. filter.
Auburn, N. Y. 28 Owasco Lake.
Chicago, Ill. 71.1 28 Lake Michigan.
Erie, Pa. 28 Lake Erie; filter crib.
Omaha, Neb. 28 Missouri River.
Portland, Ore. 28 Canal and Calapooga River.
Buffalo, N. Y. 34.3 27 Niagara River.
Springfield, Mass. 26 Springs and brooks.
Lawrence, Mass. 75.2 25 Merrimac River; sand filter.
Saginaw, Mich. 25 Saginaw River.
Tacoma, Wash. 25 Creek and Sponawny Lake.
Taunton, Mass. 25 Ponds.
Brockton, Mass. 24 Salisbury Brook.
Chelsea, Mass. 24 Metropolitan water supply.
Jersey City, N. J. 72.5 24 Pequannock River.
Peoria, Ill. 24 Open wells.
Providence, R. I. 36.4 24 Pawtuxet River.
Dubuque, Iowa. 23 Underground water.
Oakland, Cal. 23 Impounding reser.; mech. filter.
Pawtucket, R. I. 23 Abbott's Run.
St. Louis, Mo. 39 23 Mississippi River.
St Paul, Minn. 23 Lakes and Artesian Wells.
Salem, Mass. 23 Wenham Lake and Brook.
Scranton, Pa. 23 Impounding Reservoirs.
Sioux City, Iowa. 23 Driven wells.
Newark, N. J. 38.1 22 Pequannock River.
Utica, N. Y. 22 Surface water.
Bayonne, N J. 21 Artesian wells.
Des Moines, Iowa. 21 Raccoon River; filter gallery.
Fitchburg, Mass. 21 Reservoirs and ponds.
Hoboken, N. J. 21 Hackensack River.
Holyoke, Mass. 21 Ponds and brooks.
Lowell, Mass. 77.5 21 Driven wells.
Schenectady, N. Y. 21 Well and Mohawk River.
Lynn, Mass. 20 Brooks and Saugus River.
Newton, Mass. 20 Ground water, filter basin.
Somerville, Mass. 20 Metropolitan water supply.
Detroit, Mich. 30.1 19 Detroit River.
Manchester, N. H. 19 Protected lake.
New York, N Y. 19 19 Protected water shed.
St. Joseph, Mo. 19 Missouri River; mech. filter.
Cambridge, Mass. 18 Brook and pond.
Haverhill, Mass. 18 Ponds and lakes.
Lincoln, Neb. 18 Wells.
Milwaukee, Wis. 29.2 18 Lake Michigan.
Brooklyn, N. Y. 18 18 Open and driven wells.
Worcester, Mass. 18 Impounding reservoirs.
Rochester, N. Y. 17 Double supply, Hemlock Lake.
Malden, Mass. 16 Ponds and driven wells.
Fall River, Mass. 15 Watuppa Lake.
Bridgeport, Conn. 14 Small streams.
Elizabeth, N. J. 13 Artesian wells and Elizabeth R.
Yonkers, N. Y. 11 Brooks.
Rockford, Ill. 5 Artesian wells.
5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120

cur to others. It is well that it is so, for otherwise the first wreck of a train, or collision of a street railway would permanently stop travel; the burning of a building accompanied by destruction of life would lead to a desertion of all buildings similarly constructed, etc. In the case of infectious diseases, however, this psychic trait leads to a disregard of precautions defeating the efforts of sanitarians. This is why the precautionary measures intended to prevent typhoid infection remain, like some of the commandments in the Good Book, mere wise sayings without any practical application.

If individual prophylaxis is impractical, what can be done to prevent typhoid epidemics. If the individual can not or will not save himself from infection, the municipality should make an effort to prevent the infection from reaching the individual. In the case of typhoid fever, this can be accomplished with comparative ease, owing to the fact that the avenues of egress and ingress of the typhoid bacillus are limited and accessible. Every municipality should provide for its citizens a drinking water obtained from unimpeachable sources or else purified. In this country it is almost impossible to obtain an absolutely pure natural supply, owing to the high cost of land along water channels and the usually crowded habitation on water-sheds.

The table above cited shows conclusively that communities supplied from what is usually considered a pure source suffer from high typhoid mortalities. It is immaterial whether the water-supply is designated as "springs," "deep wells," "artesian wells," "mountain streams," or what not so long as communities using such waters suffer from a typhoid death rate much above 20 per 100,000, the source should be abandoned, or, what is more practical, the supply purified. Such a course would not be without a precedent, for in Europe, water-supplies which in this country would be considered ideal are purified by sand filtration. Thus the comparatively pure lake water-supplies of Zurich and Wandshek are filtered; Copenhagen filters its spring and well waters; Charlottenburg filters its well water; Stockholm filters the lake and well water, and the spring and lake waters supplying Stuttgart are filtered.

SLOW SAND FILTERS.

The question as to the best means of purifying a water-supply is debatable only in this country. In Europe it has long since been satisfactorily settled. European experience, covering a period of over fifty years and a territory inhabited by over 20,000,000 people, has conclusively demonstrated the efficacy of slow sand filtration, and as yet there appear no reasons for departure from European usages, except in those few, very few, instances where the turbidity of the water is such that slow sand filtration is inadmissible (and even in such events a slightly modified form of slow sand filtration can be applied with perfect success.) If slow sand filtration has proved so eminently efficacious in reducing the typhoid death rate to a minimum, why in the name of common sense look for something "just as good."

Whence that sudden desire of our politicians to be economical? Whence that unexpected concern about expense manifested by the political bosses of Pittsburg and other cities? Whence that peculiar fascination for the "mechanical" filters with their patents and royalties? Slow sand filters can be built just as cheaply as any community can afford. The Lawrence filter cost only $65,000 and answered the purpose well enough; and if additional expense is incurred it should only be to save in the cost of maintenance, as in the case of covered filters, which save the cost of removal of ice, etc. The first cost of a slow sand filter is fully covered by the saving in operating, the simplicity of the operation and the certainty of results. Mechanical filters, on the other hand, are costly to maintain, suffer much more from wear and tear, and are certain in their results only when operated by such experts as Fuller and Weston.

Neither the typhoid death rate of cities using mechanical filters nor actual investigation of their efficiency show them to be on a par with slow sand filters. Butler's terrible epidemic was due to a mechanical filter which "got out of order," as every mechanical device is liable to, and the city of Chester is having continuous trouble with its water-supply, although the water company uses a mechanical filter. Mechanical filters, however, are not the only things in the way of proper purification of a water-supply. Many of our cities waste thousands of dollars on artesian wells which run dry, as happened in Albany before the introduction of sand filtration, or on artesian wells which are so loaded with iron as to ruin the pipes, as in Gloucester, N. J., or so-called artesian wells which derive the water from a polluted river, as is the case in Camden, N.J.; on huge sedimentation basins which fail to bring about purification, as in Washington, D. C.; on impounding reservoirs which become polluted, as is the case in many of our cities. Public funds are wasted on infiltration galleries, cribs and other makeshifts, while the typhoid death rate goes on unabated. As an excellent object lesson I may cite the city of Wilmington, Del., not because this city is exceptional in this respect, but because I am more familiar with the facts.

In 1893 this city, through its representatives, plunged into a scheme of water purification which proved unique. Unique in conception, unique in construction and unique in the failure to bring about the expected results. It was an iron-clad system of upward sand filtration, representing a conglomeration of forced oxygenation and Anderson's iron process. In addition to the roar of the rushing water and the rattle of revolving iron rods, loud enough to scare the evil spirit, the plant presents a series of ducts and troughs through which the raw water was made to pass into a small compartment called a sedimentation basin, and thence upward through 3 feet of sand and gravel. The revolving rods refused to give up their iron, the air could not saturate a water already saturated with dissolved oxygen, the sand beds became clogged permitting the raw water to overflow from the side ducts into the "filtered" water, and the all-elaborate scheme proved a failure. After an experience of some ten years, during which time, by the way, the people were continuously being assured that the filter does excellent work, the plant was abandoned, and the new board of water commissioners is getting ready to build a slow sand filter.

During the same year this "filter" was built (1893), the city of Lawrence, Mass., built a slow sand filter under the direction and supervision of the Massachusetts State Board of Health. It cost the city of Lawrence about one-third what the Wilmington filter cost, and the Lawrence filter is still doing excellent work. The effect of each filter on the typhoid death rate is shown by the following table of the death rates from typhoid fever in Lawrence, Mass., and Wilmington, Del., before and after the introduction of filtration:

DEATH RATE PER 100,000.

	Lawrence. Slow Sand Filter.	Wilmington, Special Filter.
1885	42	47
1886	57.5	46
1887	117.5	65
1888	120	53
1889	137.5	50
1890	133.3	89
1891	122	53
1892	111.1	43
1893	86.6	64
1894	50	41
1895	18.6	20
1896	16.2	31
1897	13.9	40
1898	33	61
1899	18.1	48
1900	18	41

What better demonstration could one desire? Here are two cities with about an equal population, both supplied with polluted water, the pollution in the one (Lawrence) being greater than in the other and the typhoid mortality correspondingly greater. Both cities introduce systems of purification; one a slow sand filter, the other a conglomeration of mechanical devices. The death rate in the one with the sand filter rapidly subsides and keeps on diminishing, with the exception of the year 1898, when the filter had to be cleaned and replaced, the death rate in the other keeps on hovering at the same high point, with only such oscillations as may generally be expected from year to year.

The reason for the blunder in this and in similar instances lies in sheer ignorance. The water commissioners, who are laymen without the slightest conception of the problems involved, are approached by some scheming engineer, are shown a golden brick and made to believe that it is precious metal. Disinterested experts, as a rule, are not consulted, reliance being based entirely on their own imperfect judgment. In some cases, junket trips are made to no purpose save the pleasant recollection of a "good time"; and, again, in others "financial considerations" enter as an important and controlling factor. The result is invariably the same; the public is fleeced of its money, and the ravages of typhoid fever continue.

PURIFICATION OF WATER SUPPLY UNDER CONTROL OF SANITARIANS.

There is only one way to remedy this crying evil, and that is to place the entire responsibility of selecting a

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water-supply or of adopting some method of purification in the hands of a competent body of sanitarians, like the state boards of health, or, in case the latter is incompetent to cope with the problem, in the hands of a special commission of recognized sanitarians. In Germany the duty of guarding the public water-supplies devolves on the imperial board of health. In this country, where each state enjoys its home rule, the power should be vested in the state board of health. This is practically being done in the progressive state of Massachusetts, with what results may be seen from their mortality statistics. Where the state board is weakened by ill-advised political appointments, or where the proper legislation covering this point can not be secured, the physicians, represented by their medical societies, should exercise a controlling influence.

When a problem of such magnitude as a water-supply is presented, where so much is at stake, the physicians should step forward and safeguard the community against the results of an ill-advised move. In their medical societies they should appoint competent committees to investigate the points at issue and to submit reports based on a thorough sifting of the evidence. With such reports, the society can easily mold public opinion and force the adoption of such measures that would best serve the interests of the community. This was done by the medical society of Washington, D. C., when the question of filtration was being discussed. What the medical society has accomplished is matter of congressional record, of which the society, especially its able committee, may well feel proud. It was due to their zealous efforts and able management that the official recommendations of Colonel Miller were set aside and a system of slow sand filtration adopted instead of mechanical filtration as originally recommended. It is a matter of extreme regret that the medical societies of Pittsburg and of other cities similarly situated do not take up the noble work of preventing typhoid epidemics.

The prevention of pollution of a water-supply with sewage should receive careful consideration. It is past human understanding that in a civilized country one community should be permitted to discharge its raw sewage into the drinking water of another because it happens to be separated by a state line. It is an offense for communities in Pennsylvania to pollute each other's drinking water, but it ceases to be an offense when the town of Coatsville, Pa., discharges its raw sewage into the Brandywine, a small stream supplying Wilmington with drinking water. There should certainly be a law requiring all towns and cities which find it necessary to discharge their sewage into a stream, to purify the sewage before it enters the stream. Such a law could be enacted by each state separately and the benefits would be reciprocal. That sewage can be successfully purified is shown by the investigations of the Massachusetts State Board of Health and by the experience of cities in this country and abroad. It appears that the septic tank method is the one promising the best results.

Wherever these general measures can not be introduced, or pending the introduction of such measures, efforts should be made to prevent the discharges from typhoid patients from reaching a water-supply, either general or local, municipal or individual. This can be accomplished in one way only, and that is by a thorough disinfection of the excreta of typhoid patients. To accomplish this the Wilmington Water Department made an appeal to the local physicians asking them to report the cases of typhoid fever and see to it that the attendants on the sick follow the directions given on a special card prepared by the department. The circular letters, together with the card of instructions, are here given. I have reason to believe that the scheme is working satisfactorily.

FIRST CIRCULAR SENT OUT TO THE PHYSICIANS.

Dear Doctor:—Pending the introduction of an efficient system of purification of our water supply, the Board of Water Commissioners is making an effort to protect the Brandywine Creek against pollution, and more especially pollution with discharges from persons suffering from typhoid fever. To accomplish this the board has asked the city and state boards of health, through their respective secretaries, to request the physicians practicing along the Brandywine watershed to notify the proper health officers of all cases of typhoid fever occuring in their practice along the Brandywine Creek or any of its tributaries; these reports to be forwarded by the health officers to the water department. As soon as a report is received a circular letter will be sent by the water department to the physician in charge of the case, giving full directions as to the proper method of disposing of the fecal discharges. The physician will be asked to place these directions in the hands of the attendants and see to it that they are carried out.

It is thus evident that the first and most important step in carrying out the plan as outlined above is the faithful and expedient notification of cases of typhoid fever, and we earnestly appeal to you individually to co-operate with us in this important undertaking.

The city of Wilmington, with a population of over 80,000 people, depends for its water supply on the Brandywine Creek, which, as you no doubt know, is exposed to contamination all along its watershed of over twenty miles. The recent sad experience of Butler, Pa., where, to quote an authoritative report, "impure water and lax sanitary administration," resulted in a typhoid epidemic of about 1,300 cases with 60 deaths, and a similar epidemic in Ithaca, N. Y., of 1,300 cases and 73 deaths, not to mention several other typhoid epidemics in this country, point to the danger to which Wilmington, similarly situated, is exposed. Moreover, the experience of Plymouth, Pa., in 1885, shows that the pollution of the drinking water with the fecal discharges from just one typhoid patient was sufficient to precipitate an epidemic of 1,104 cases and 114 deaths.

This danger, which is by no means exaggerated, can be largely removed by the active co-operation of the physicians with the health authorities in securing the strict observance of such sanitary precautions as will prevent the contamination of the drinking water with living typhoid germs. The measures now proposed by the water department for the protection of its own watershed will, we believe, secure the desired immunity, provided, however, the active co-operation of the physicians can be obtained.

You now realize the responsibility we place on you, and we feel confident that you, as a physician and fellow-citizen, will respond to our request and notify your health officer of every case of typhoid fever, however mild, occuring in your practice within the district bordering on the Brandywine or its tributaries.

Respectfully,

CIRCULAR LETTER ACCOMPANYING CARD OF INSTRUCTIONS.

Dear Doctor:—We received from ———— the information that you have under your charge a case of typhoid fever in the home of ————.

In pursuance of our plan outlined in a previous communication, we ask you to place the inclosed circular into the hands of the nurse or attendants and use your influence in persuading them to carry out the instructions.

Should you experience any difficulty in the matter by reason of indifference on the part of the people, or should the family be too poor to purchase the necessary disinfectants, you will greatly oblige us by communicating the fact to the undersigned.

In endeavoring to prevent the pollution of our drinking water we fully realize the difficulties which we will encounter and which we will be unable to overcome unless we are favored by your hearty support and co-operation. May we suggest that you make the disinfection of the excreta a subject of inquiry at your regular visits so that the attendants may see that you are taking a personal interest in the matter and thus become more fully convinced of its importance? Respectfully yours,

TO THE ATTENDANTS. PRESERVE FOR REFERENCE.

HOW TO TAKE CARE OF THE DISCHARGE FROM TYPHOID PATIENTS.

A CIRCULAR OF INSTRUCTIONS ISSUED BY THE WILMINGTON WATER DEPARTMENT.

Typhoid fever is caused by a germ which finds its way into the food or, more frequently, the drinking water.

The germ causing typhoid fever is *invariably* derived from the stools and urine of persons suffering from the disease.

The disease may be also communicated through soiling one's hands with the discharges and then permitting the hands thus soiled to come in contact with the food.

Infection may be prevented by destroying the germs in the discharges by means of disinfectants.

Therefore, to save yourself as well as others from infection, observe the following precautions:

1. Keep on hand a five-gallon jug or other suitable vessel filled with any one of the following solutions:

Solution No. 1. Chlorid of lime of the best quality, guaranteed to contain at least 25 per cent. of available chlorin and free from a strong odor on opening the box, 6 ounces to each gallon of water.

Solution No. 2. Formalin (40 per cent.) 5 fluid ounces to each gallon or a little over a pint and a half to the 5 gallons of water.

Solution No. 3. Carbolic acid 4 ounces to the gallon or a pint and a quarter to the 5 gallons of water.

The choice of any of these solutions should be determined by the ability to obtain the pure article. Whatever solution is used the vessel should be kept tightly corked.

2. Have the receptacles for the stools (bed-pan, night-chamber, etc.) provided with a closely-fitting lid, or improvise a lid from several thicknesses of paper with some weight over it. It is better to have two receptacles of a kind so that a clean one may always be on hand for the patient's use.

3. When required for use, put 1 pint (2 glassfuls) of the disinfectant into the vessel (or if the urinal is used, one-quarter of a pint) that the discharges may come in contact with the disinfectant on their very issue from the body. No harm is done if some of the disinfectant should happen to spill on the bed clothes.

4. Remove the vessel containing the discharges to some secluded place in the house, add enough of the disinfectant to completely cover the discharges, stir up the contents with a small stick, replace the lid and allow it to stand for at least two hours. Remember that the longer you permit the discharges to come in contact with the disinfectant the more harmless do they become and the less obnoxious to handle.

5. If there is no water closet in the house, the discharges, after the disinfection, should be buried in the soil at least 100 feet from any well or stream.

6. When your hands become soiled with the discharges, they should be washed, first in the disinfectant (neither of the disinfectants will injure the skin) and then with soap and water.

7. All articles of the patient's clothing which have become soiled, and all the sheets, towels, napkins, etc., used by the patient should be kept in solution No. 2 or 3 (not in solution No. 1) until they are washed.

8. Use the disinfectant freely on all occasions requiring cleansing of soiled surfaces, and remember that "an ounce of prevention is worth a pound of cure."

Such precautions, if rigidly enforced, with the aid of proper ordinances or legislative enactments would practically eliminate pollution of sources of water-supply, especially in the country. I use the term "practically" advisedly, for pollution may still occur from "walking" typhoid patients, and from patients whose disease is either wrongly diagnosed or from the urine of convalescents. In addition, there will still be some physicians mean enough to disregard all rules and regulations, physicians, who, to save themselves a little trouble will jeopardize the lives of hundreds.

Generally speaking, the eradication of typhoid fever will depend on the closing of all avenues by which the formidable enemy may gain entrance, and the successful issue of the combat will depend on the strategy and erudition of our most important warriors—our sanitary officers and the medical profession.

DISCUSSION.

DR. G. T. SWARTS, Providence, R. I., said that in the state of Rhode Island for four or five years a small mechanical filtration plant has been in constant use. The amount of water used is a matter of only 250,000 gallons per diem, still, as the system which is used is but one initial of what might be 100 of the same form, there is no reason why the result should not be the same. Its efficiency is supervised by the State Board of Health. It seems to be necessary that some state or municipal authority shall have control of all filtration plants owned by individuals or by corporations, with the power to make changes in the administration of the works, otherwise failure is apt to result.

DR. A. ROBIN said that he is under the impression that when mechanical filters work satisfactorily they are under the control of experts, or are on a very small scale. In a large plant, when there is a desire to save time or money, and competent supervision is lacking, a filter will fail. On the other hand, the operation of a slow sand filter is much simpler and works with more certainty. Wherever careful supervision by trained men is possible the mechanical filters may prove equally efficient.

THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

HARVEY CUSHING, M.D.
Associate Professor of Surgery, the Johns Hopkins University.
BALTIMORE.

(*Concluded from page 1008.*)

FURTHER ANATOMIC AND PHYSIOLOGIC NOTES.

One of the most important chapters in Krause's valuable monograph deals with the "*Physiologic des Trigeminus,*" and the painstaking observations, drawn from the study of his first thirteen cases, are therein recorded. It is regrettable that in his more recent (1901) communication, containing fourteen additional cases, he has limited his communication, as have most other surgeons who have reported on cases of ganglion extirpation, purely to the operative respects of the procedure with little, if any, comment on the consequences of the neurectomy. There are many points referable to the distribution and function of the trigeminus which still need elucidation, and no opportunity comparable with this clinical one is offered to the anatomist or experimentalist for their determination.[36]

Sensory Anesthesia.[37]—A more or less accurate knowledge of the trigeminal fields has been gained through several methods of observation, attached to many of which there are distinct drawbacks. The anatomic dissections of Frohse and Zander fail to give the functional distribution; the experimental method, carried by Sherrington on the ape to its highest possible attainment, is seriously blocked by the impossibility of communication, so necessary for the interpretation of sensations; Henry Head's observations on the segmental fields determined by the distribution of zoster (objective) and of referred pain and tenderness (subjective) fail to give sharp outlines for the individual areas; and so on. A study of the fields of anesthesia, after a purposeful intracranial neurectomy in man, is comparatively free from these limitations, particularly when combined with the study of the areas resulting from lesions of the adjoining (postaxial) nerves. A series of such operations, all conducted on similar lines, gives an opportunity of establishing what may be considered the normal or average field and also of determining its variations; these data the study of isolated cases can not give. It is necessary, furthermore, that the completeness of the neurectomy be assured for observations made after partial extirpations or non-surgical lesions have heretofore been responsible for much uncertainty in regard to the physiology of the nerve. Accompanying most of the 20 histories recorded above are photographs of the patients, taken usually on or about the tenth day and portraying the areas of postoperative cutaneous anesthesia as they had been plotted on the face. Considerable variation is shown in the posterior confines of the field in the earlier cases, but when it became an invariable practice to follow a given

36. Tedious and time-consuming as are the necessary examinations, patients, who have been relieved of their pain, will, almost without exception, gladly co-operate in them, and to these twenty individuals I owe many thanks, not only for their help in this respect, but for the privilege of reporting on their case and of reproducing the foregoing photographs.

37. A study of the trigeminal fields in detail has been made the subject of another communication (The Johns Hopkins Hospital Bulletin, July, 1904) and the results only need be summarized here.

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method of making the tests it soon became evident what slight differences there were from case to case in the configuration of the boundaries.

It may be said, in general, that two lines, seen in their typical and almost unvarying outline in the photographs of the more recent cases, can be easily mapped out. One of them, the more posterior, delineates the area of tactual anesthesia as tested with a hair esthesiometer. This boundary, starting from the midline of the vertex at a point somewhat posterior to the bregma, runs obliquely forward and then downward across the parietal region of the scalp until it approaches the attachment of the ear, when it curves backward, inclosing a portion of the ascending rim of the helix, together with the crus of the same; thence, at the upper edge of the tragus, it dips into the external auditory meatus, the anterior and upper wall of which as far as the drum is anesthetic; it reappears at the lower edge of the tragus, curves upward over the cheek at a somewhat varying angle, then turns downward and, keeping at a distance of about 5 cm. from the angle of the inferior maxilla, crosses its horizontal ramus and reaches the median line again, a few centimeters below the mental eminence. Ascending from this mesial point to the lower lip, into the mouth (Fig. 33), over the gum, along the lingual frenum and tongue as far back as the circumvallate papillæ; here the boundary again deflects from the median line, passing along this row of papillæ to the palatoglossal fold, thence to the anterior pillar of the fauces, the margin of the soft palate and uvula, at the tip of which the midline is again reached, and this it follows until it returns again to the starting point on the crown by way of the midline of the soft and hard palate, the alveolar process, the upper lip, nose and forehead. The entire Schneiderian membrane of the operative side is, of course, devoid of sensation other than that of olfaction, for the sense of smell is unaffected. There is one detour of this line, namely, where it crosses the pharynx, that has been omitted from the above, as I am not quite certain whether or not there is a strip of esthesia which separates the oral from the pharyngeal areas. It is, however, demonstrable that the Eustachian orifice is, at least, hypesthetic, and it is quite probable that the mucous membrane field bears the same relation to this opening that the skin field does to the external auditory meatus, as would be expected on morphologic grounds. The first visceral cleft, the anlage of the ear, headward to which the trigeminus is the only sensory nerve, presents, as it were, more or less of a natural barrier to overlapping, since the nerves reach the skin before the ventral closure of the cleft. The auditory canal is consequently a place of anchorage, so to speak, at which the trigeminal outlines remain fixed, no matter how they may be otherwise altered from the embryologic condition through the later development, particularly of the occiput and lower jaw, into their adult configuration. The tragus and a small portion of the helix, inclusive of its crus, develop from the mandibular bar on the trigeminal side of the cleft and naturally are sensatized by the fifth nerve. In the last five or six cases the external auditory canal has been carefully tested, showing, as a rule, that its upper and anterior wall are rendered anesthetic, together with a greater or less part of the tympanum, tapping on which with a horse hair, through a speculum, gives only the auditory sensation of loud rapping without the sensitiveness evinced on the opposite, the normal side. In one of the cases the drum was bisected by the handle of the malleus into an anterior anesthetic and a posterior normally esthetic field. A negative, so to speak, of the trigeminal skin fields may be determined by outlining the areas of anesthesia consequent on cervical nerve lesions (Fig. 34) and the combination of the two suffices to show the presence of a small intervening area within the concha presumably innervated by a cutaneous branch from the vagus.

An exception must be made to the statement of completeness of tactual anesthesia within the confines of the mucous membrane field outlined above. The anterior portion of the tongue is not totally deprived of its sensation by the neurectomy, certain forms of common sensation being preserved, and I am inclined to believe that the impulses travel, together with the taste fibers, by way of the chorda tympani and facial nerve (*pars intermedia*) to the brain.

The line which limits the field of analgesia is generally a few centimeters within the line of tactile anesthesia, does not, as a rule, extend to the tragus, and has other peculiarities which cannot be discussed here. It may be said, however, that in the intervening zone between the boundaries for pain and touch, shown in the later photographs, painful impulses give no dolorous sensation, but only the impression of contact or pressure.

Muscle Sense.—After a total neurectomy, this is completely abolished in the trigeminal field and may be of serious import from an operative and cosmetic standpoint. Careful observation will show in all cases a more or less marked asymmetry of the face, apparent not only at rest, but also during volitional or even emotional movements of the face. At rest, particularly during the early postoperative period, the face seems somewhat swollen, due in part to the vasomotor paralysis, but chiefly to the loss of postural sense; the lips droop slightly, the nasolabial fold is less deep than normal and there is a general loss of tonicity in the expressional musculature; the position of the tongue and palate are also affected. The condition may be accentuated by volitional movements; whistling or "trumpeting" out the cheeks is difficult or impossible; the mouth distorts in an effort to show the teeth by opening lips alone, etc. Expressional movements also may be affected, though usually in less marked degree and depending, I presume, on the character of the cortical control through the facial nerves over these normally symmetrical movements. On one occasion (Case 20) I was astounded on the fourth or fifth day to see develop what was supposed to be a total facial paralysis. No movements whatever were possible in the facial musculature on the operative side; lagophthalmus and all the other signs of a typical Bell's palsy were present. Persistence of normal electrical reactions, however, banished this opinion. Normal control was soon regained. I doubt not that some of the complicating cases of facial paralysis heretofore recorded have been of this nature.

In view of Sherrington's experiments on the production of monoplegia, by the severance merely of the sensory nerve-roots alone to a limb, it would not be surprising had immobility of half of the face proved to be an invariable consequence of ganglion extirpation. It is probably obviated through the bilateral character of facial movements. At a later period, months or years after the operation, so far as I have made out, there is apt to be an overaction of the muscles on the operative

side, with perhaps a slight deepening of the nasolabial fold and of the furrows radiating from the eye (crows-foot). There is a very simple way of demonstrating the absence of postural sense, for faradization of the muscles is accompanied by no appreciation of their changed position, provided the movements are not sufficient to be transmitted to the opposite side. The electrical "sting," of course, is unappreciated, other than by a "coppery" taste, in case the electrode lies within the anesthetic area, and, indeed, there is no better way to mark out areas of tactual anesthesia than by the sting of a fine unipolar platinum electrode.

Motor Paralyses.—The necessary sacrifice of the motor root of the trigeminus has already been discussed in connection with the operative procedure. That the chief muscles of mastication, the temporal, masseter and pterygoids, on the side operated on, are consequently paralyzed needs no comment. The atrophied muscles undergo a fibrous change, with subsequent contracture, as has been mentioned. Paralysis of the pterygoids affects, in a measure, lateral chewing movements, and on opening the mouth the deflection of the jaw toward the side operated on evidences the unilateral loss of function of these two muscles. The protruded tongue, also,

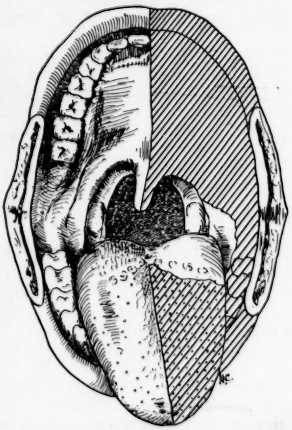

Fig. 33.—Schematic view of visible portion of mucous-membrane field of anesthesia. Lingual area retains its sensitivity to taste, as well as to certain forms of common sensation.

is usually deflected toward the operative side, not, however, from any palsy, but because it tends to keep in the median line of the deflected jaw from which it obtains its sense of orientation. Loss of muscle sense in the anterior portion of the tongue, as in the case of the facial muscles, may play some part in bringing about the postural attitude of the protruded tip, and with the organ at rest in the mouth it is often apparent that on the side operated on it lies lower than on the sound side. Of the buccinator muscle I have no data except that food is likely to collect in the cheek until training overcomes the difficulty, a condition probably due to the anesthesia of that side of the mouth and to interference with postural sense rather than to any palsy of the cheek. The muscle probably receives its entire motor supply from the facial nerve, its sensory fibers, according to Henle, being of trigeminal origin. A palsy of the mylohyoid and anterior belly of the digastric is evident on palpation in the majority of cases, but leads to no visible or functional disturbances.

Two other muscles, the tensor tympani and the tensor palati[38] are said to be innervated likewise by the trigeminus. The position of the drum, its degree of tension, the ability to recognize high-pitched sounds with a Dalton whistle, have been in most cases carefully looked into without evidencing any postoperative disturbance with sufficient regularity to accredit it to a paralysis of the tensor tympani. One of my cases, as did one of Krause's, complained for some time of a ticking sound on the side operated on, which could not be accounted for in any such simple way as by the presence of dried blood or of cerumen in the external ear. Other than this the patients seem to have been free from symptoms referable to the ear.[39]

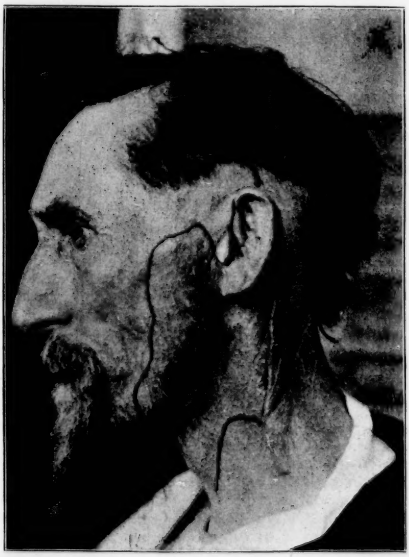

Fig. 34.—Area of tactual anesthesia, due to an intervertebral enucleation of the right dorsal root ganglia of the second and third cervical segments, in a case of neuralgia of this region.

It is otherwise with the tensor palati, if that is the palatal muscle affected by the neurectomy. The innervation of the muscles of the soft palate has long been a question of dispute. There are three possible sources of supply: according to Sir Charles Bell, through fibers from the portio dura (*N. facialis*) acting through Meckel's ganglion and its posterior palatine branches; Hughlings Jackson attributed them to the accessory nerve of the vagus; others believe that they are entirely or in part supplied by the trigeminus. The studies on which these claims are based and the arguments raised against them need not be entered into

38. *N. tensor veli palatini* (Anat-Nomen).

39. Lucae in 1874 in his essay on "Accommodation" showed the importance of the M. tensor tympani in perception of musical tones. Subjective humming or ringing in the ears has been reported (Schmidt, Müller) as a symptom accompanying the early stage of the involvement of the ganglion in a disease process.

here.[40] More than one source of supply, however, is probable, and there is quite conclusive evidence adduced by Turner, Hughlings Jackson, Beevor and Horsley, with others, that the accessory nerve of the vagus is a partial, if not the entire, source, as they claim. Turner says: "It would seem, therefore, that the muscles of the soft palate derive their motor supply from the pharyngeal plexus through the pharyngeal branch of the vagus and that this nerve obtains its sensory fibers from the accessory nerve to the vagus." He doubts the possibility of the tensor palati receiving any motor supply from the trigeminus, although Bell, Romberg, Gowers and others have held this opinion. Krause, alone of those who have reported on the postoperative physiologic sequelæ of ganglion extirpation, makes mention of palatal examinations and has seen no postural anomalies whatever.[41] I have always attempted before the operation, when the patient's condition allowed, to examine the position of the palate both at rest and during phonation, and, although unfortunately in several of the cases in which the most marked postoperative changes were observed a preliminary palatal examination had been precluded owing to the severity of pain, nevertheless the data, such as they are, seem suggestive, if not convincing. A characteristic postoperative asymmetry has been demonstrable in several cases; a condition which remains permanent. Four of these cases were found beforehand to have symmetrically placed palatal arches. The characteristic position may not always be apparent except on phonation of the sound "ah," or especially of a prolonged "eh," which accentuates the weakness of the arch on the side operated on. The abnormal position consists in a tilting of the uvula toward the side of the neurectomy, in a narrowing and heightening of the arch on the sound side, and with a broadening and lowering, apparently from relaxation, of the arch on the operative side. The deformity can not be accounted for, I think, by the deflection of the jaw during the palatal examinations or by any other possible connection with the paralyzed pterygoid muscles.

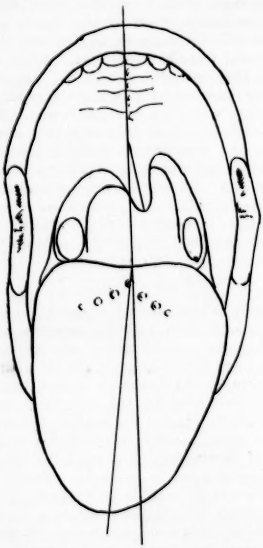

Fig. 35.—Postural deformity after extraction of right ganglion (Case 7). Deflection of jaw and tongue to right and of uvula to left; heightening and narrowing of fauces on left during phonation, not apparent on right.

The necessity of preliminary observations is very important, and not until they had been made in a series of cases not only in these, but in other and normal individuals, was the frequency of asymmetrical positions, especially in the uvula, fully appreciated. In some of the ganglion cases the uvula, even though the arch of the palate has shown the characteristic features described above, would be deflected toward, instead of away from, the paralyzed side, and I have not included these irregular cases in the group mentioned above. More conclusive still of a trigeminal supply to the palate is the fact that in one case after the extirpation (Case 12) the stump of the *N. mandibularis* was electrically stimulated, and with the mouth held open sharp contractions with deflection of the palate were produced, an observation which was several times repeated, though only on this single case. This result is not in accordance with the observations of Reid (quoted by Turner), as he failed to elicit any such movements on trigeminal stimulation in animals, and apparently only on excitation of the accessory nerve of the vagus have experimentalists been able to elicit movements of the palate, at least up to the time of Turner's report. There is one very important case in this connection in which, unfortunately, it was impossible before the operation, owing to the patient's condition, to make preliminary observations. In this patient Meckel's ganglion had been removed at a previous operation, the motor supply of the soft palate, as stated above, being supposed by some to come from the portio dura via this ganglion to the palatal muscles. In this patient, as the accompanying outline (Fig. 35) will show, the deformity has been more marked than in any other of my cases, and the patient, a public speaker, says that when fatigued or when talking rapidly he has some difficulty with pronunciation of the palatal sounds. The tensor palati plays the additional part of opening the Eustachian tube during deglutition, and its paralysis may very naturally lead to some of the subjective noises in the ear which have been described as resultant to ganglion extirpation. It is an interesting fact that not only the sensory supply of the trigeminus remains fixed in the adult at both the auricular and pharyngeal orifices of the passage which has developed from the first visceral cleft, but also that the two small muscles which, from the mandibular side, play a part in the physiologic actions of the canal are innervated, supposedly through the otic ganglion by the motor branch of the same nerve.

Taste.—A report has already been made summarizing the results of observations on the first thirteen of these cases in reference to the possibility of a path for the taste fibers by way of the fifth nerve.[42] It is needless here to do more than add some notes to this pre-

40. Aldren Turner: The Innervation of the Muscles of the Soft Palate, Journal of Anatomy and Physiology, vol. xxiii, 1889, p. 523.

41. Krause: *Die Neuralgie des Trigeminus.* 1896, p. 85. *"Ich habe in meinen Fällen keine Stellungsanomalie von irgend welchem Belang am weichen Gaumen bemerkt."*

42. The Taste Fibers and Their Independence of the N. Trigeminus. The Johns Hopkins Hospital Bulletin, vol. xiv, 1903, p. 71.

viously detailed account. Although there is no morphologic basis whatever in its support, a great number of clinical observers have found that lesions of the trigeminus are accompanied by a loss of taste on the anterior two-thirds of the tongue on the corresponding side. Thus has originated the belief in a devious path for the fibers conveying these sensations, the most generally accepted being the following: from the tongue via the lingual nerve to the chorda tympani and so to the geniculate ganglion; thence by way of the great superficial petrosal to Meckel's ganglion, to the maxillary ramus, and thus via the Gasserian ganglion to the trigeminal nerve and to the brain. It would seem that a study of cases of trigeminal neurectomy would have finally determined whether or not this is the actual course taken by these gustatory impulses. On the contrary, the results have been most conflicting. This possibly may have been due to several causes—to the neglect or impropriety of subjecting a suffering individual to preliminary tests for taste; the more or less uncertainty regarding the total extirpation; to improper methods of making the tests; or to a failure on the part of the patient or of the observer to take into consideration the almost complete loss of common sensation from the section of tongue under examination. In my previous report it was mentioned that in one only of the thirteen cases had there been a failure to establish a final return of taste perception. This was accounted for on the ground that there is occasionally demonstrable a temporary cessation in transmission of gustatory impulses for a few days after the operation, a fact which possibly may be due to the acute degenerative changes in the lingual nerve whose fibers intimately accompany the chorda fibers for a part of their course. A single examination limited to the anesthetic side in this case (Case 1) had been made on the sixth day; it was subsequently found that the anterior part of his tongue, on both sides, did not possess any sensitiveness to the four cardinal taste qualities. It must always be borne in mind that in some individuals, especially those advanced in years, taste perception on the anterior part of the tongue may be dulled or entirely absent. Hence, the need of preliminary observations for purposes of control. In my last seven cases particular stress has been placed on these examinations for taste. In one (Case 13) there was marked postoperative impairment, and, although there is a return of gustatory sensation, sweet and saline substances are not recognized with quite a normal acuity or promptness. The next five cases showed absolutely no impairment whatever. Two of them, indeed, have believed that the taste sensations were more acute than on the sound side, as there was no confusion from other sensations associated with the placing of the moist swab on the tongue. It seemed in Case 19 that an exception to the rule had been found. Owing to her great pain and inability therefrom to protrude the tongue no preliminary tests whatever were made. Taste perception after the operation proved to be completely and permanently absent on the side operated on. It was only learned subsequently from her previous attendant that he had some years before performed an intrabuccal operation with evulsion of the inferior dental nerve and, as is so often the case, the lingual nerve and chorda tympani had at this time been divided; there had been no reunion in the fibers of the latter nerve.

Unless I have made some gross error, the evidence seems conclusive that the gustatory impulses do not, unless in very exceptional cases, and then only partially, enter the cranium in company with the *N. trigeminus*. There must be some other path for them, and I am inclined to the view of the morphologists that the chorda tympani represents, in part at least, the sensory portion of the facial, whose central stem is the *N. intermedius* of Wrisberg. I believe, also, from the facts mentioned in another section in regard to the preservation of certain other sensory qualities in the tongue, that there may be some fibers sentient to tactual stimuli which follow this same path to the brain. Overlapping from across the median line or from the postaxial field of the glossopharyngeus can not possibly account for the findings. In attempting to explain those cases in which loss of taste has been found by reliable observers to be present months or years after the neurectomy, the suggestion was offered that late fibrous changes taking place in the regenerated lingual nerve might serve in some instances to block transmission along the intermingled special-sense fibers of the chorda tympani. It should be noted, furthermore, that it may be necessary to make several tests in these cases. It has occasionally been found that on the first trial the patient may not appreciate or may fail to recognize the quality of a gustatory impulse which on a second examination, later, may be immediately identified; also, that after responding quickly and promptly to taste impressions on the anesthetic half of the tongue the patient, possibly fatigued in the interim by a long examination for sense qualities in other areas, may show a very marked delay in the recognition of precisely the same strength of solution should the gustatory tests be repeated.

AFTERWORD.

This malady, whose clinical portrayal so long ago as by Avicenna was given with an accuracy sufficient to render subsequent descriptions almost superfluous, waited 800 years before even its simple anatomic location could be understood, waited, indeed, until Bell and Majendie accomplished for the peripheral nervous system what William Harvey the century before had done for the circulation, namely, to establish a sound physiologic basis of observation. Not until Sir Charles Bell's demonstration of separate paths for afferent and efferent impulses was it possible to institute any rational surgical measures toward the relief of a purely sensory affliction. Before this time division of the motor nerve had been recommended and actually practiced for neuralgia of the face,[43] under the delusion that wise nature had provided for this important region two nerves, the fifth and the seventh, both of which subserved equally the function of transmitting motion and sensation to the same areas. It is a presumption possibly to believe that it will not require another long era before the etiologic factors of the disease are unveiled and its pathology put on an equally sound basis. Its morbid nature as yet, and this in spite of the clinical definiteness of the malady, remains a mystery; and, as a matter of fact, other diseases of the posterior root ganglia, and it is not impossible that there are many, have hardly begun to be classified. We seem to have advanced some-

43. It is interesting to know that Dr. J. C. Warren of Boston, according to Dr. Holmes' essay on "Neuralgia," published in 1836, was the first to divide the facial nerve at its exit from the stylomastoid foramen for tic douloureux. It is interesting also that associated with the resultant paralysis there followed a "limited degree of relief," doubtless from the immobility of the face which made the inauguration of paroxysms from the lips and nose, etc., much less likely.

what beyond Dr. John Fothergill,[44] who considered that the neuralgia was due to a "sharp, corrosive, cancerous acrimony"; but how much beyond, possibly a later generation alone can tell. Oliver Wendell Holmes,[45] it will be remembered, advocated most emphatically the malarial origin of the disease.

The Gasserian ganglia, which have been removed in the cases above recorded, have nearly all been subjected to examination by expert neuropathologists. Dr. Spiller[28] and Dr. Barker[11] have already published careful reports on the histologic findings of the first four of them in which they were so kind as to take an interest. The tissues from the later cases have been studied by Dr. Rusk, who feels that no lesion sufficiently characteristic to consider it typical of a particular disease is present. Numerous other ganglia, removed postmortem, have been studied as controls and exceptional opportunities for carrying out the investigation were offered by the character of the surgical material itself; several of the ganglia were from patients on whom no previous neurectomies had been performed so that cellular changes consequent on degenerations following these earlier operations led to no confusion in the histologic picture, as they so often do; furthermore, the tissues from the fatal case made it possible to compare a ganglion from the neuralgic with that from the supposedly sound side of the same individual.

The Gasserian ganglion, whether or not primarily so, in the end seemingly becomes affected, and clinical evidence goes to show that the process, whatever it be, is migratory, involving, as pointed out above, one after the other of the three groups of cells which represent the fused tripartite ganglion. The experiments which Dr. Barker and I carried out, though few in number, sufficed to show by the study of Nissl changes that the groups of cells are quite distinct, and thus it is that one cluster alone may become involved in an acute lesion like that of herpes zoster, the pathology of which Head and Campbell have done so much to clarify. The ganglion lesions which produce this segmental outcrop of herpes, particularly when occurring in individuals who have passed middle life, not uncommonly result in a vexatious so-called "postzoster neuralgia." I have seen several individuals suffering from this residual of zoster, two of them after a herpetic involvement of the ophthalmic division of the trigeminus. Though an acutely troublesome and intractable malady, it remains clinically quite distinct from true neuralgia; the pain is not paroxysmal in the same degree, and remains limited to the original field of vesiculation, showing no tendency in the case of the semilunar ganglion to migrate to the other divisions of this structure. Its severity at times may be great enough to demand surgical intervention, and here again are shown characteristics distinguishing it from the more common type of neuralgia, since peripheral operations in the postzoster form do not suffice even to give temporary relief, as I have learned to my sorrow through several failures; the posterior root ganglia must be removed.

The morbid lesion underlying true trigeminal neuralgia, unlike that of zoster, has so far eluded search and the histologic changes in the cells, the swelling and vacuolization, the chromatolysis, alterations in the tigroid, nuclear fragmentation and other departures from the normal which have been so painstakingly described are, as Coenen[46] has emphasized, due in large part, if not entirely, to the effects of earlier peripheral neurectomies and correspond histologically to the lesions found, for example, in dorsal root ganglia months after the amputation of a limb. The tissues from two of the cases in Lexer's series examined by Coenen showed no histologic abnormalities whatever; no peripheral operations had preceded the ganglion extirpation in these two cases. And with these findings those of Monari, Schwab and ourselves have been in almost exact accord.

Let us hope that some one with new histologic methods and possibly more extensive material may solve this pathologic riddle, for not until the lesion is known may we expect to discover its causal agent, and not until then may we have hopes of supplanting for surgical measures others less difficult, though they could hardly be more certain of affording immediate and permanent relief.

44. Fothergill: A Painful Affection of the Face, Medical Observations and Inquiries, vol. v, p. 129, London, 1773, Lettsom's edition of Fothergill's works.

45. Holmes: "The Nature and Treatment of Neuralgia," Boylston Prize Dissertation, 1836.

46. H. Coenen: Mikroskopische Befunde am Ganglion Gasseri in den 15 Fällen von Lexer, Archiv für klin. Chir., 1902, vol. lxvii, p. 333.

NORMAL SALT SOLUTION AND OTHER LOCAL ANALGESICS

IN THE OFFICE TREATMENT OF ANO-RECTAL DISEASES.*

J. RAWSON PENNINGTON, M.D.
Professor of Rectal Diseases, Chicago Policlinic.
CHICAGO.

Recent discoveries and improved technic in the use of local analgesics have enabled us to treat as ambulatory cases many patients suffering from various forms of minor ano-rectal diseases whom we formerly sent to the hospital for treatment. This ofttimes obviates the necessity of putting aside all business and social obligations and of making a two or more weeks' stay in a hospital, with all its attendant anxieties and embarrassments. Such patients, with few exceptions, are now operated on at the office or at the patient's home. Before operating, if there are no contraindications, about the only question asked the patient is: "Did your bowels move to-day?" If so, and if an operation is indicated or necessary, and the patient so desires, the field is prepared and the operation is performed, either a normal salt solution or a eucain-adrenalin solution being used as the local analgesic.

In my first experiments some years ago I used cocain as a local anesthetic. In many instances the toxic effects of this drug were so alarming that I discontinued its use. Recognizing, however, the great advantages and utility that a satisfactory local analgesic would afford in treating many of these cases, I continued my investigations and experiments along these lines.

Recently, in selected cases, and quite satisfactorily too, I have used sterile water for this purpose. The use of water as an analgesic was suggested to me by Dr. Gant of New York, who has reported over 300 cases of various kinds operated on under the influence of this agent. He states, however, that the injection in some instances may cause considerable discomfort or even pain. I found this to be true, especially in those cases of acutely inflamed thrombotic piles and abscesses, or in which it was necessary to make the injections into the deeper tissues, and in cases in which the operation necessarily was prolonged.

* Read before the Chicago Medical Society, 1904.

In a cursory review of the literature, however, I find that the use of water as a local analgesic is not new. According to Dawbarn of New York,[1] Halsted used water hypodermically as a local anesthetic for small operations as long ago as in 1885. He found that it succeeded best when the water was injected into the skin, not beneath it. Dawbarn also made experiments with this agent on himself, assisted by Dr. F. A. Manning of New York.

Oscar Liebreich[2] found that distilled water produces the caustic as well as the anesthetic effect, and that those substances producing painful anesthesia cause dilatation rather than contraction of the blood vessels.

Schleich[3] noted that sterilized water, when injected hypodermically, will produce anesthesia in the region of edema. He tried the experiment on himself and on his assistants, and used it in removing a large carbuncle.

Sollmann of Cleveland[4] refers to local anesthesia produced by distension of the tissues with pure water and says that the edema is very painful.

Dr. T. C. Witherspoon, St. Louis,[5] frequently has used boiled water or air infiltration in opening abscesses.

Gould, in his recent "Dictionary on New Medical Terms," 1904, refers to water anesthesia as "anesthesia dolorous of Liebreich."

Heinze[6] of Dresden in his experimental investigations found that pure water alone is an intense irritant to the sensory nerves, and that anesthetic solutions diluted with it beyond a certain extent have the same effect, and render the injections painful. He also demonstrated that the addition of salt entirely obviated this source of irritation.

Hence, it occurred to me that some isotonic solution would be a better agent than water with which to produce pressure or mechanical analgesia when injected hypodermically. The nearest approach to this is sterilized urine or normal salt solution. The latter agent I have used very satisfactorily. The addition of salt to the water is not for the purpose of affecting analgesia, but to prevent the irritative symptoms, as it is desirable that the solution injected should give as little pain as possible and also that it should not be harmful to the tissues.

Should it be desirable, as it is in some instances, especially where the injections must be made into the deeper tissues and the operation necessarily prolonged to secure the specific action of some drug, as eucain or cocain, alone or in combination with the distension of the tissues, I then add a small quantity of eucain lactate and adrenalin chlorid to the salt solution. Adrenalin intensifies and prolongs the analgesia, and when the analgesic agent is used in combination with it, less of the agent is required to produce the full effect.[7]

SOLUTIONS.

To determine the potential effect of various solutions on normal tissues I had Dr. W. A. Evans of the Columbus laboratories make certain tests for me and incorporate herewith his report, which is as follows:

I have made use of two procedures. I have mixed the solution and freshly drawn blood, using the hanging drop proceeding and protecting the drop from the evaporation by the use of grease along the edge of the cover glass. In this way, I have been able to watch the behavior of the red blood cells mixed with this solution. In addition to this I have determined the freezing point of different solutions. I am not certain that a determination of the electrical conductivity of the solution would give any more information than is to be obtained from the two procedures already noted. I made a solution of adrenalin and eucain in a normal urine with a gravity of 1,020. I found that this froze at about 1.5 degrees. When blood was added to this mixture the corpuscles were promptly crenated. A mixture of eucain and adrenalin in from .6 per cent. to .75 per cent. salt solution seemed to be isotonic to red blood cells; on the one hand these cells did not crenate, on the other they did not lose their hemoglobin. These mixtures froze at about .5 degrees C. and at 9 degrees C. respectively. The average freezing point of blood is .56 degrees C.

It will thus be seen that these solutions are practically isotonic with blood and we would expect them to give the minimum amount of pain and the minimum disturbance of the tissues.

The following is one of the solutions that was submitted to the above tests and clinical experience proves that it answers well:

Beta-eucain lactate	2
Sodium chlorid	75
Adrenalin chlorid solution	65
Distilled water	100

This entire quantity of fluid, according to Barker of London, who has made valuable contributions to the literature on the subject of local analgesia, can be used with comparative impunity. He has used as much as 6 grains of beta-eucain hydrochlorate and 20 minims of adrenalin chlorid solution without noting any ill effects. Matas of New Orleans and others have used larger amounts. They are careful, however, not to allow more than 5 grains of the drug to remain in the system. To make the normal salt solution, put into an Erlenmeyer or Jena glass flask 3½ oz. (100 c.c.) of distilled water and 11.5 grains (.75 gm.) of chemically pure sodium chlorid. Boil for two or three minutes; when cooled to blood heat it is ready to use. To make the eucain-adrenalin solution add 3 gr. (.2 gm.) of beta-eucain lactate to the water at the same time the salt is added, and after boiling and cooling to the body temperature add 10 drops of adrenalin chlorid solution, and it is ready to use.

The cases in which I have successfully employed one or the other of these solutions to produce local analgesia include radical operations for protruding and non-protruding internal hemorrhoids; interno-external, thrombotic and cutaneous hemorrhoids; polypi, anal prolapse, fistula, fissure, ulcerations, abscesses, sacral dermoids, lipomas, condylomatas and secondary operations for colostomy.

TECHNIC.

The technic depends more or less on the nature of the operation to be performed. In internal hemorrhoids, the salt solution is injected directly into the tumor until the latter becomes white, when it is grasped with a pair of forceps and the mucosa carefully divided down to the submucosa: this tunic, which contains the principal blood vessels, is then ligated with a very fine linen ligature and the major portion cut off. As the lymphatics and circulating blood rapidly remove isotonic solutions from living tissues, the anesthesia is of short duration and the operation must be performed very quickly. In polypi, the salt solution is injected into the base of the pedicle, a ligature thrown around it and the tumor cut off. Interno-external piles are treated in the same way

1. Med. Rec., Nov. 14, 1891, p. 613.
2. "Note sur l'anesthesie locale," Compt. rend. Soc. de Biol., Paris, 1888, 8th ser., vol. v, p. 340.
3. Deutsche med. Zeitung, 1891, No. 66.
4. Pharmacology, 1901, p. 234.
5. Interstate Med. Jour., July, 1903.
6. Arch. f. pathol. Anat. und Phys., und Ztft. f. klin. Med. vol. cliii. No. 3.
7. H. Braun of Leipsic.

as the internal variety. In prolapsus ani the injection is made into the mucosa and deeper structures; sections of these tunics are then ligated and cut off.

In cutaneous hemorrhoids the skin is first anesthetized, then the central portion of the hemorrhoid; the tumor is then removed with a sharp knife. I say knife, because I have observed that scissors are more apt to cause pain than the scalpel. In all cases requiring deep or extensive operations the skin should be carefully and thoroughly anesthetized first, and then the deeper structures. Very fine needles are used for the skin, coarser ones for the subcutaneous tissues, and for the deeper structures still larger ones, which are blunt and have holes in the side instead of in the end, to avoid injury to vessels. It is important that the solution be warmed to the body temperature. Rapid injections should be avoided, as sudden distension of the tissues may be painful. For the same reason neither solution should be used when cold or too hot. Strange as it may seem, most patients complain of but little pain on the days after the operation. In fact, they have much less pain than after taking chloroform or ether, to say nothing of the suffering experienced by some in coming out from under the influence of the anesthetic, and the healing process seems to be much more rapid and satisfactory. This is probably because the resisting power of the patient has not been lowered with a general anesthetic, as it has been shown by George Rubin of Chicago[8] that the administration of ether and chloroform has a decidedly detrimental influence on the natural defenses against infection.

After hemorrhoidectomy a cone-shaped dressing covered with a piece of the thinnest rubber dam is applied to the anus, and over this the ordinary dressings, all being held in position by a snugly fitting T bandage. Should the patient complain of much pain, hot compresses or a hot sitz bath may be used and will usually give relief.

I have operated on about 75 patients under local analgesia. The aggregate amount of pain has been much less than in a similar class of cases operated on under general anesthesia. In some instances the pain was quite sharp for a few moments, but nothing in comparison with the pangs, anguish and writhings occasionally seen in patients after the ligature operation for hemorrhoids under general anesthesia. In one patient I had to abandon the operation. This was purely a case of "psychic pain." I do not believe that any local analgesia can control this nervous dread and fear experienced by some patients. A hypodermic of morphin, administered 20 to 30 minutes before operating, seems partially to control the pain in some cases. Many of these patients did not have any pain worth mentioning.

CONCLUSION.

Since practice and experience have demonstrated that effective and radical treatment in this class of diseases can be accomplished in the office or in the patient's home, and without his foregoing all business and social obligations, going to the hospital, taking an anesthetic, which always occasions more or less anxiety on the part of both the surgeon and patient, and remaining there for two or three weeks, I believe that another step in advance has been made in the treatment of selected cases in the practice of proctology.

103 State Street.

8. Trans. Chicago Path. Soc., March 14, 1904, vol. vi, No. 4.

THE APPLICATION OF LABORATORY METHODS TO THE DIAGNOSIS OF VARIOLA.

WILLIAM TRAVIS HOWARD, JR.
Professor of Pathology, Western Reserve University.
CLEVELAND.

(From the Smallpox Research Laboratory of the City of Cleveland and the Pathological Laboratory of Western Reserve University.)

The rapid increase of our knowledge of infectious diseases since the middle of the last century, together with the recent advances in laboratory methods, particularly in bacteriologic and histologic technic, has had a profound influence on the accuracy of medical and surgical diagnosis.

Tuberculosis, cholera, typhoid fever, anthrax, actinomycosis, diphtheria, bubonic plague, pneumonia, bacillary dysentery, and various forms of primary and secondary wound and other infections, among the bacterial diseases; trichinosis, pébrine, malaria, amebic dysentery, filariasis, trypanosomiasis, and various forms of helminthiasis, among the diseases caused by animal parasites, may be enumerated as examples of infectious diseases for the diagnosis of which laboratory methods are in constant use. In short it may be said that, as soon as the parasitic origin of a disease is established, the demonstration of the presence of the causal agent is used as the basis of exact diagnosis. Laboratory methods are also availed of in the diagnosis of certain affections whose etiology is still undetermined, as rabies, tumors and certain diseases of the blood-forming organs for instance. The methods in use for these purposes are (1) microscopic examinations (*a*) of coverslip preparations, (*b*) of sections of tissue; (2) cultures; (3) serum reactions; and (4) animal inoculations.

Recent advances in our knowledge of variola make it possible, it seems to me, to utilize two of these methods for the diagnosis of this disease.

Councilman, Magrath, Brinckerhoff,[1] and Tyzzer,[2] in 1903 and 1904, published a series of articles concerning the etiology of vaccinia and variola, in the skin lesions, of which they found certain bodies situated in the cytoplasm and nuclei of the epithelial cells, and which they describe as stages in the life cycle of a protozoan parasite, *cytorrhyctes variolæ*. These bodies, of various sizes, shapes and staining reactions, occur only in the cytoplasm in vaccinia and in both the cytoplasm and nuclei in variola.

Calkins,[3] using their variola material, has made out a very complex life cycle for this parasite, consisting of one cytoplasmic and three internuclear stages. He classes the organism among the microsporidia, a form of protozoa. More recently Howard and Perkins,[4] working on material from seventeen cases from the recent Cleveland variola epidemic, found the bodies as described by Councilman and his co-workers, and confirmed their work, with the exception of one of the intranuclear stages of Calkins, which they could not find. Howard and Perkins[4] added a second cytoplasmic stage, and according to them the life cycle of the organ-

1. Councilman, Magrath and Brinckerhoff: A Preliminary Communication on the Etiology of Variola, Jour. of Med. Research, 1903, vol. ix, p. 372. The Pathologic Anatomy and Histology of Variola, Ibid., 1904, vol. xi, p. 12. The Occurrence of *Cytorrhyctes Variolæ* (Guarnieri) in the Skin of the Monkey Inoculated with Variola Virus, Ibid., 1904, vol. xi, p. 173.

2. E. E. Tyzzer: The Etiology and Pathology of Vaccinia, Jour. of Med. Research, 1904, vol. xi, p. 180.

3. Gary N. Calkins: The Life Cycle of *Cytorrhyctes Variolæ*, Guarnieri, Jour. of Med. Research, 1904, vol. xi, p. 136.

4. Howard and Perkins: A Study of the Etiology of Variola, Jour. of Med. Research, 1904, vol. xii, 359.

ism, as far as is known, consists of four stages, a primary and a secondary cytoplasmic and a primary and a secondary intranuclear. They also found the bodies in the skin lesions excised during life, as well as those obtained at autopsy. So far as is known, these bodies in the skin lesions of vaccinia and variola, are peculiar to, and characteristic of, those diseases. Councilman, Magrath, Brinckerhoff[1] and Tyzzer[2] have found only the primary cytoplasmic stage in vaccinia.

With the foregoing facts in our possession, it is a natural step to utilize this knowledge for the diagnosis of vaccinia and variola from each other and from other diseases.

DIFFICULTIES IN THE DIAGNOSIS OF VARIOLA.

While the clinical picture of variola in its usual type, especially in well established epidemics, is clear cut and easy of recognition, it is well known that isolated cases, particularly early in epidemics, often present clinical pictures of indefinite characters and are difficult of exact diagnosis. Among the affections most commonly confused with variola are varicella, syphilis, pemphigus, impetigo contagiosa, measles, lichen, the bites of certain vermin, and certain drug rashes. Hemorrhagic variola may be mistaken for various other forms of purpura. Bancroft suggests that certain cases of variola without characteristic eruption are thought to be influenza.

To properly diagnose and isolate primary cases is of the greatest importance in the control of variola. In many instances the failure to do this is due to the ignorance on the part of a large proportion of practitioners concerning the usual and unusual clinical pictures of this disease. Largely on this account, the first cases of variola in a community go unrecognized, until after the exposure of a number of susceptible persons, and the consequent outbreak of numerous secondary foci of the disease. These occurrences often lead to disputes between physicians and health authorities. This unfortunate condition of affairs can be avoided by a ready and sure method of laboratory diagnosis.

METHODS OF LABORATORY DIAGNOSIS OF VARIOLA.

Animal Inoculation.—This method has been used heretofore to some extent. The bovinæ and rabbits will develop vaccinia after inoculation with the contents of variola vesicles and pustules. Magrath and Brinckerhoff[5] have similarly produced variola inoculata in the monkey by inoculation with variola virus obtained from three epidemics. Park[6] has proposed this method for differentiating variola from varicella.

Animal inoculation then, by the development of vaccinia in the bovinæ or in rabbits, or of variola inoculata in monkeys, may enable one trained in the appearances of the vaccinia and variola eruptions to make a positive diagnosis within from five to eight days, or within from eight to eleven days if one has to resort to the histologic study of the experimental lesions.

While of distinct value in certain instances, this method is too slow to be of general use. This is no doubt the chief reason why it has not been more widely adopted.

Study of Sections of Excised Skin.—With the possible exception of varicella, it is definitely known that none of the skin lesions which may be mistaken for variola and vaccinia, show the peculiar bodies which have lately been described in these diseases and grouped into the life cycle of a protozoan parasite by Councilman[1] and his pupils,[2] by Calkins[3] and by Howard and Perkins.[4] In the one case of varicella from which I have had the opportunity of studying sections of the excised skin, no such bodies were found.

Whether one agrees or not that the bodies described in vaccinia and in variola by the above-mentioned observers are protozoan parasites, is not of importance for our present purpose. For this it is sufficient that these bodies, in the sequences given below, are constantly present in the skin lesions of vaccinia and variola, and are absent in other affections for which these diseases may be mistaken. As they are peculiar to and characteristic of vaccinia and variola, and as the sequence of these bodies are different in these two diseases, I, therefore, propose the microscopic examination of skin lesions excised from suspected cases of variola for the purpose of diagnosticating this disease in doubtful cases. I believe that in this way a positive diagnosis can be readily made in almost all, if not in all cases, provided the technic advised below is carried out with exactness.

I[4] have studied skin lesions excised during life from eight cases of variola in different stages of the disease, from the early papular to the pustular stage, and have found *Cytorrhyctes variolæ*, in some stage of its life cycle, present in all. The cytoplasmic and intranuclear bodies are the same in all respects, whether the skin be excised during life or obtained at autopsy.

TECHNIC.

Small pieces of characteristic areas of the skin with the suspicious eruption are excised, under local anesthesia by ethyl chlorid, with the aid of a sharp knife or curved scissors. Care must be taken to obtain specimens large enough to include the whole lesion and the underlying corium. The specimens should be fixed at once in Zenker's fluid, the outside of the bottles properly disinfected, and the bottle and contents transported to the laboratory as soon as possible. Zenker's fluid is the only fixative that gives satisfactory results. It has the following composition:

Bichromate of potassium	2.5 grams
Sulphate of sodium	1. gram
Corrosive sublimate	5. grams
Glacial acetic acid	5. c.c.
Water	ad, 100. c.c.

Dissolve the corrosive sublimate and the bichromate of potassium in water, with the aid of heat; add the acetic acid just before using.

From now on the time element is of importance and the fixing, imbedding and preparation of sections must be carried out with the utmost celerity consistent with good results. If the material must be sent to a distant laboratory, the time consumed by the journey will suffice for proper fixation. For fixation in Zenker's fluid, the time for small pieces of tissue may be cut down to from eight to twelve hours. By allowing a similar time for washing, the tissue may be run through the various steps for paraffin imbedding and good sections obtained in from sixty to ninety hours from the time the skin is excised. Thin sections are necessary, and I prefer them from three to four microns thick; but good results may be had with sections of seven or eight microns in thickness. Paraffin imbedding is the only method to be relied on for this purpose.

There is little chance that frozen sections may be of

5. Magrath and Brinckerhoff: Experimental Variola in the Monkey, Jour. of Med. Research, 1904, vol. xi, p. 230.

6. Park, W. H.: A Practical Method of Differentiating Between Variola and Varicella by Means of the Inoculation of Monkeys, Trans. Assn. Am. Phys., 1902, vol. xvii, p. 208.

service, but this method might be tried. It is possible that in a certain percentage of cases currettings from the deepest part of the skin lesions spread on cover glasses or slides, fixed in Zenker's fluid and stained, may show the bodies to be described below. In the one case in which I tried it, the bodies were not found. Of course, the mercury in the sections must be removed before staining. Sections may be stained by any of the following methods: (1) Eosin and methylene blue; (2) Borrel's stain; (3) iron hematoxylin, followed by aurantia; (4) Weigert's fibrin stain, preceded by carmin. The best methylene blue and eosin method is that advised by Mallory.[7] He stains first in 5 per cent. aqueous solution of yellowish eosin for twenty minutes, followed by Unna's alkaline methylene blue for five minutes. Differentiate and dehydrate in 95 per cent. and in absolute alcohol and clear with xylol on the slide. The methylene blue method is useful, however, only for the primary cytoplasmic bodies (see infra). The Borrel stain should be used as advised by Calkins.[2] After hydrating the sections through progressively weaker alcohols, stain for twenty minutes in a saturated aqueous solution of magenta (Magentaroth, Grübler), wash in water and stain for five minutes in a picro-indigo-carmin solution, made by adding one part of a saturated aqueous solution of picric acid to two parts of a saturated aqueous solution of indigo-carmin. Differentiate in the alcohols, ending in absolute, and clear in xylol. In properly stained sections the red stain is completely extracted from the nuclei of the epithelial cells, the cytoplasm of which is stained a pale green.

The peculiar bodies to be described below stain brilliantly. The other staining methods mentioned may be found in any good work on laboratory technic. Councilman has obtained exquisite pictures of the different forms of variola bodies in sections stained by Weigert's method.

For a detailed description of the bodies described below the reader is referred to the articles of Councilman, Magrath, Brinckerhoff, of Tyzzer, of Calkins, and of Howard and Perkins above referred to, which are amply illustrated. I give here simply a short objective description of what I consider as necessary for the diagnosis of variola in any stage from the papule to the pustule. For this purpose I will give as nearly as is possible the relation of each sequence of bodies to the corresponding stage of the skin lesion. Any one with a fair training in pathologic or clinical microscopy, with a good light and an oil immersion lens should be able to recognize them without any difficulty, in properly fixed and stained preparations.

CORIUM. PAPULAR STAGE.

The blood vessels, especially the blood capillaries of the papillæ, are dilated, and may or may not contain an increased amount of blood, the leucocytes of which bear their normal proportion to the erythrocytes. In hemorrhagic cases, the hemorrhage from the distended capillaries is evident. In many papillary capillaries, the endothelial cells are swollen, desquamated, and increased in number. The perivascular lymphatics show similar changes and often contain large mononuclear leucocytes.

In a few cases I have found in the capillaries and between them and the membrana propria of the skin small round homogeneous deeply staining bodies identical with the early bodies to be described below in the epithelium. No other forms of the specific bodies are found in the corium, which for our present purpose is without further interest.

EPIDERMIS. PAPULAR STAGE.

In the early papules, occasionally between but commonly within the deeper layers of epithelial cells, there are a variable number of small, homogeneous, usually round, bodies which stain deeply with nuclear dyes. These bodies in the cytoplasm, called gemmules by the advocates of their parasitic origin, are usually surrounded by small vacuoles. They may be in any part of the cytoplasm, but usually are about the nucleus. In sections stained first in magenta and then in methylene blue they stain bright red, while the nuclear chromatin stains blue. In older papules, these bodies and their surrounding vacuoles are larger—the former measuring three or more microns in diameter. They are at this stage often oval, reniform or crescentic in shape, and show differentiation with various stains.

With methylene blue and eosin, the main mass is red, with here and there unstained areas. In still older lesions the bodies are larger and show a delicate reticulum which stains, with eosin, magenta and orange. Up to this time there is little change in the epithelial cells except that those containing the bodies are swollen.

In more advanced lesions the cytoplasmic bodies are larger—from 4 to 10 microns in diameter—and very irregular in shape. In Borrel preparations they are marked by larger and smaller red dots and bars and irregular areas on a green background. About this time, fluid accumulates in the lesion and the cells are much swollen. The next forms to be found vary from six to sixteen microns in diameter, and are round, oval or oblong, and have the appearance of amebæ. With Borrel's stain (the best stain from now on), the main mass of the bodies stains green and usually numerous small, round, equidistant, homogeneous bright red dots are present. Some of the bodies at this time show a delicate red-staining alveolar meshwork. Somewhat later there are found large amebæ-like forms, in the spaces of the reticulum of which one can see numerous small, round, homogeneous deeply staining dots of the size and appearance of the earliest bodies described in the epithelial cells. These dots (called gemmules) stain with methylene blue, iron hematoxylin, magenta or fuchsin.

Similar dots may also be seen in the intercellular spaces. This entire sequence of forms is common to both vaccinia and variola. In many cases they are also found at this time in the cytoplasm of cells at the margin of the original lesion. This is believed by the advocates of their protozoan nature to be local autoinfection.

The lesion at this time contains a variable amount of fluid, which varies with the severity of the case. Many epithelial cells are swollen and some are necrotic. The vesicular stage is now well established.

VESICULAR STAGE.

When this is fully established, in many lesions few cytoplasmic forms may be found. In some lesions, however, a second cytoplasmic sequence of bodies is discernible. Of these the earliest forms so far described are small round or oval bodies staining green with Borrel's stain and yellow with the iron hematoxylin and aurantia stain. They lie in the cytoplasm, from which they are separated by a distinct membrane. Later, similar forms containing from two to four dots stain-

7. F. B. Mallory: Jour. of Med. Research, 1903-4, vol. x. p. 487.

ing with nuclear dyes are seen. The next stage in this secondary cytoplasmic sequence is the appearance of larger bodies of the same type, surrounded by a membrane, but divided into four segments by faint lines of cleavage. Neighboring cells may contain from four to eight small oval somewhat granular bodies of about the size of an erythrocyte, each containing a central chromatin-like dot. Similar forms may be seen in the intercellular spaces and in the cytoplasm and nuclei of other cells.

This completes the secondary cytoplasmic sequence, which is believed by Howard and Perkins to be the second stage in the cycle of *Cytorrhyctes variolæ* So far as is known, it is only found in well-established vesicles in variola, but never in vaccinia. The lesion at this time does not usually contain enough leucocytes to warrant calling it pustular, but this varies with the severity of the case. I will, therefore, with this explanation, describe the next sequence, the primary intranuclear stage, under the vesicle.

PRIMARY INTRANUCLEAR STAGE.

This series of forms in the nucleus is readily recognizable, and begins with the appearance, in the nuclei of the epithelial cells of the deeper rows of the variola lesion, of small bodies from three to eight microns in diameter, with granular cytoplasm and a single central chromatin-like dot. This body is identical in appearance with the end body of the last-described sequence. The smaller forms do not fill the nucleus. With the progression of the series, the intranuclear bodies are increasingly larger and more complicated in structure. The first difference in the latter respect is shown by the presence of numerous small deeply staining chromatin-like dots throughout these bodies; the next difference is marked by the occurrence of a variable number of hollow rings in addition to the dots. Later, in some forms, small peripheral vesicles, each containing a central deeply staining dot, is found about these hollow rings. In other forms the whole solid body appears to be changed into a collection of minute rings with central dots; this body has a peculiar morula appearance.

The small dots within the vesicles, on close examination with high powers, are found to be hollow, circular structures or rings somewhat thickened at one side. This third sequence is interpreted as follows by the adherents of the protozoan interpretation of these structures:

The solid mass with the central dots, which somewhat later develop numerous scattered chromatin-like dots, is the pansporoblast; the rings developing within these are the young primary sporoblasts, and the dots formed within the vesicles about these rings are the spores.

At this stage the lesion almost always contains enough cell detritus and leucocytes to be styled pustular; therefore, the fourth sequence of bodies will be described under the pustular stage of the pock.

PUSTULAR STAGE.

At this period in the evolution of the skin lesion, the superficial layers of the epidermis are markedly projected outward, with a cavity between them and the lower epidermis. This space is filled with fluid, cell detritus, leucocytes and erythrocytes in variable numbers. The cells of the deepest layers, as before, contain the characteristic bodies. The earliest form of the secondary intranuclear sequence of bodies is marked by the presence in the nuclei of many of these cells of from one to six of the minute ring bodies met with at the end of the primary nuclear sequence. In many lesions these two sequences of forms overlap, some nuclei containing the end forms of the primary, and others the first forms of the secondary intranuclear sequence. The progress of the latter sequence is shown first by the presence of larger intranuclear ring bodies, with increased thickness of one side of the ring. After this, intranuclear rings are seen which have a single or multiple row of small peripheral vesicles. In larger forms which may nearly fill the nucleus, there is in each of these peripheral chambers a small deeply staining body identical with the "spores" of the primary intranuclear body. The bodies containing these dots are called the secondary sporoblasts, and the dots the secondary spores, which are believed to be the end forms of the life cycle of *Cytorrhyctes variolæ*.

The bodies of this secondary intranuclear sequence are readily found and stain red with Borrel's stain and with fuschin; black with iron hematoxylin, and blue with Weigert's stain. With the completion of this series of forms the pustular stage is complete, and the progress of the pock is at an end. In some lesions, however, at this stage, at the border of the pock, the cytoplasm of some epithelial cells may contain the bodies described in the papule as the primary cytoplasmic sequence; this is regarded as local autoinfection. None of the bodies are found in the healing pock.

In studying the variolous lesion with the purpose of finding the above-described bodies as a basis of diagnosis, it is, of course, necessary to remember that these structures occur in definite groups or sequences, and that it is useless to look for the cytoplasmic forms (with the exception of the "local autoinfections") in late lesions or for the intranuclear forms in early lesions.

As has been stated above, it is not my purpose to give in the present paper a full description and interpretation of these bodies, and the reasons for believing them to be protozoan parasites. This has been done in another article.[4] I wish at this time simply to call attention to them as definite structures peculiar to variola and vaccinia on which the diagnosis of these diseases can be based, believing, as I do, that an early diagnosis can thus be made in doubtful cases, with the result of cutting short variola epidemics.

TREATMENT OF INTESTINAL AMEBIASIS IN THE TROPICS.

W. E. MUSGRAVE, M.D.

From the Bureau of Government Laboratories (Biological Laboratory), Manila, P. I.

MANILA, P. I.

The happiest results which may follow any research are those which lend themselves to practical application in the prevention or cure of disease, and nearly all of the great advances made in therapeutics are of this class.

Because the progress made in the treatment of intestinal amebiasis since its identification as an independent disease by Osler, Councilman and Lafleur has been of an empirical nature, there has been a long delay in introducing the methods most generally employed at the present time, and these are still far from satisfactory. The differences which exist regarding the treatment of the disease in various places within

the geographic belt where it is endemic, have also to a certain extent been brought about by the question as to the rôle which the amebæ play in its causation. Heretofore it has not been possible to be certain in regard to this because of the failure to cultivate the parasite, but now that this is made a practicable procedure and the etiologic rôle of amebæ is established, the first essential to building up a rational therapeutics is fulfilled.

Formerly, owing to failure to cultivate amebas and, therefore, without definite knowledge of the distribution of pathogenic ones in Nature, rules for prevention have been formulated without specific data in regard to this particular disease, and the result has been a greater lack of uniformity and success in the use of prophylactic measures than in the treatment of the infection. Inefficacy on one hand, and unnecessary severity on the other, have most certainly been the result of this ignorance.

In Bulletin 18, Bureau Government Laboratories, some of the important questions relating to prevention and cure of amebiasis have been elucidated, and methods and lines of work opened which will undoubtedly furnish other important data. However, this work is not complete, and a full discussion of methods of prevention and treatment, according to our present knowledge, will probably necessitate changes in the near future regarding some questions which are as yet indefinite or unexplained. Therefore, this paper will deal with the more important and heretofore neglected points in prophylaxis and treatment, and an attempt will be made to utilize some of the experimental facts which have been demonstrated.

The complication amebic appendicitis is really a continuation of the disease from the cecum to the appendix, and for that reason, and because of its importance in considering therapeutic measures, it will also be briefly discussed.

Intestinal amebiasis (amebic dysentery) is the medical subject of the most universal interest in the Philippine Islands. It causes more than 50 per cent. of the invalidism of public servants; it must be reckoned with in the profit-and-loss accounts of business enterprise; and it enters into consideration in military movements. It numbers among its victims all ages, all classes and all races, being most prevalent in Manila among the unacclimated adult Americans.

Theoretically, at least, it is a preventable disease, but just how far the various theories are supposed to insure prevention are of practicable and necessary application while still allowing some of the comforts of life, is the problem to be solved for the successful prophylaxis against it. Heretofore the only recommendation, based on facts, which could be made, was that of the ideal prophylaxis, which, briefly expressed, is to take nothing into the gastrointestinal canal which has not been sterilized by heat.

Such a procedure, while efficient, is not always practicable, is always inconvenient, and as we learn more of the habitat and manner of life of the amebæ, we find that it is not necessary in every respect; however, it is so nearly so that all departures from it should be in the nature of specific exceptions. Previously, all such exceptions were due, in a sense, to speculation, and their variety is responsible for many cases of the disease. There are numerous Americans who have taken advantage of less stringent measures, and who have escaped the disease during four or five years' residence in Manila. Others, who have apparently followed similar recommendations, have fallen victims, and, finally, there are numbers of foreign residents in Manila to-day, who have been more than four years in the country, who have not contracted dysentery, and who have eaten and drunk without the slightest regard for the consequences.

This principle of natural immunity (used in its most inclusive sense) is very noticeable in this disease, but it depends on so many conditions, is often transient, and, finally, as it can not be determined by justifiable means, any conclusions based on observations such as are given above, must be unsatisfactory. However, with methods of cultivation of amebæ at our command, this problem of the simplest "technic of living" compatible with safety is a practicable one.

PROPHYLAXIS.

To fully grasp the importance of preventive measures it must be remembered that amebic dysentery is endemic in the Philippine Islands, and amebæ which can not be differentiated from the infecting agent are easily isolated from a surprisingly great variety of substances.

Water furnishes a prolific source of the organisms, and the majority of cases of the disease can be traced to it, either directly or indirectly. Practically all the surface waters of the Philippine Islands contain the parasites in large numbers, and all the cisterns and wells which we have examined are even more richly supplied with these and other parasites. Rain water stored in cisterns is perhaps the most dangerous.

Water.—The city water supply of Manila contains large numbers of protozoa, and amebæ, which are not distinguishable from those found in the intestinal ulcers in dysentery, may be drawn from the tap water almost at any time, and cultures of some of these amebæ when ingested by monkeys produce dysentery in these animals. The danger from water has become quite generally recognized by the public, and honest effort to overcome the difficulty is made, but the methods looking to this end are very often ill advised.

First to be considered is the use of distilled water. Much of the so-called distilled water in this city is either not distilled at all, or it is stored in reservoirs which are not properly cared for, and consequently, amebæ and other parasites may be frequently cultivated from it. On the other hand, it often happens that a safe water is contaminated by handling after its receipt from a reputable source. It is taken into a vessel which has been washed in tap water, or, if this is not the case, is placed on ice in bottles which have had a similar treatment. In the last few weeks Mr. Clegg and I have cultivated amebæ from the water kept in bottles for drinking purposes from five different residences, and similar results have been obtained in cultures from the water coolers in public offices. Where water is boiled for drinking purposes, similar contaminations may result from handling, and filtering should never be relied on for preparing drinking water unless the filter and method of its use and care are thoroughly understood. The rather extensive practice of filtering water after it has been boiled is particularly pernicious. If filtration is desirable it should always be done first and the water boiled afterward.

The use of carbonated and other bottled waters, both imported and of home manufacture, is coming more and more into general use, and but for their expense would soon solve the problem for the better class of

people. Here, though, as with the distilled waters, care in the source of the supply is necessary, for many of the local bottling works issue a product of doubtful purity, and in some instances have sold such an article under the label of a more reputable firm. Such observations must also be extended to imported waters, for some of those which are at times on the market here with labels of water known to be pure, are (in reality) bottled on some of our neighboring coasts, and are certainly, in certain instances, dangerous. However, perfectly safe and good bottled waters, both domestic and imported, are on the market.

The question of the judicious use of water in the kitchen and pantry is an important one, although satisfactory recommendations are difficult. In the tropics the housewife does not feel inclined to spend time in the kitchen, and servants are not trustworthy. The average kitchen in Manila is dirty, and is supplied with tap water which usually is used by the servants in preparing foods and cleaning all dishes and vessels. From what has already been said, the danger from such sources is obvious, and that correction is practicable and not very expensive. Every kitchen range could well be supplied with a large hot water-tank, such as is commonly used in America, and this tank should be the only source of water for both kitchen and pantry. An ordinance requiring the installation of such a boiler as a part of the plumbing system of a house of the better class would do something toward controlling a disease which causes more invalidism than some of the other more prominent infectious diseases, for the control of which large sums are annually spent by our government.

Water used for the mouth should, of course, receive the same care as that for drinking purposes. The city water is satisfactory for the bath, provided care is exercised to avoid its introduction into the mouth or rectum. Such water, of course, should never be used for the vaginal douche or as a simple enema. Both these practices are surprisingly common, and many cases of dysentery are undoubtedly brought about by the use of the latter.

In Bulletin 18, Government Laboratories, we have shown that amebæ are much more dangerous when in the encysted stage, and that among other causes, cold will always cause the parasites to assume this condition. From this it is obvious that water, as well as other articles of diet which contain amebæ, are more apt to cause infection when taken cold. Of the substances served in this way, the ices and ice cream deserve especial notice. It is perfectly certain that much of the "sorbete" sold on the streets contains encysted amebæ, and careful analysis would probably show the impurity of some ices from more reputable sources. These ices are standard preparations for social functions, at which they are served in large quantities under abnormal conditions, and hence increased elements of danger of infection are always perfectly apparent. After one of the large receptions given last autumn, we cultivated dysenteric amebæ from the washings from the ice-cream dishes and from the water in which they were washed, while samples of the ice cream taken from the original container was free from them.

Vegetables and Fruit.—The surface of uncooked green vegetables and fruits are another frequent habitat of amebas, and a common means of the transmission of the parasite to the human intestine. Since the foreign population has become educated to the point where they use drinking water of a quality which is, as a rule, safe, the use of green vegetables is probably one of the most fertile of the remaining sources of infection, and the number of people, otherwise reasonably careful, who will eat these things with impunity without any special preparation, or at most, after they have been rinsed in distilled water, is perfectly surprising. Others, who would not risk eating such things, will allow their use in garnishing foods or in flavoring soups, which is accompanied by almost as great a risk. Lettuce, one of the most frequently infected of vegetables, was formerly not used by the more intelligent class of people, but recently it has become possible to obtain a nice looking quality of this article at the Agricultural Experimental Farm, and it has become quite a popular article of diet.

On February 9 we obtained some lettuce from this farm with a view of determining the presence or absence of amebæ, both before and after washing the leaves. One head was placed in a large sterile flask, a quantity of distilled water added, and the whole thoroughly shaken for several minutes. The water was then carefully drained into another sterile flask, and without removing the lettuce from the original container, it was submitted to four additional washings, any one of which was more thorough than would be given by a careful housewife. Tubes of fluid from each of these washings were then centrifuged, and a microscopic examination showed amebæ in two of them. Cultures were made from all these flasks and amebæ, which were those of true amebic dysentery, grew in every tube, although they were most numerous in the first washing.

Nearly all other vegetables and some fruits yield results similar to that which we obtained with lettuce; the fruits with thick sound skins and those which are strongly acid are probably safe articles of diet, but it must not be forgotten that one of the first amebæ ever cultivated was from sour fermenting grapes. Boiling water kills the amebæ almost instantly, and there are but few fruits or vegetables which are damaged materially by scalding, provided they are first made very cold by placing them for a time on ice.

Soil.—Soil is a natural habitat of amebæ, and the organisms in such a location are particularly numerous in the Philippine Islands. From such a source water, which might otherwise contain but few amebas, is often richly supplied. This is particularly shown by the almost epidemic spread of the disease following the recent flooding of Manila and which brought with it the washing out of cesspools and other places where otherwise the parasites might have remained harmless. Methods of personal cleanliness and other necessary precautions to avoid the introduction of amebæ from such sources, into the alimentary canal, suggest themselves.

Alcohol.—Alcohol, as in many other diseases, has received a great deal of discussion as a preventive agent in dysentery. It undoubtedly exerts a destructive action, even in moderately dilute solution, but that its habitual use is of value in preventing infection is not proved. The acidity of the normal stomach probably plays an important preventive rôle, and while hyperacidity may follow the use of alcohol, that condition is not necessarily constant.

Personal Factors.—There are certain important personal factors, which enter into a consideration of prophylaxis. Children are less susceptible to the disease, and in them it is more amenable to treatment.

This is particularly fortunate when their habits and the difficulty with which they are controlled are considered. The unacclimated Caucasian is the most liable to contract amebiasis, and the newcomer should always secure proper advice in order to escape preventable consequences.

One should strive by exercise and, in general, by living a well-regulated life, to keep in good physical condition; lowered vitality from any cause—diarrhea, indigestion, constipation and many other personal factors—certainly predispose to the infection.

Amebæ, not distinguishable from those in the intestinal contents in amebic dysentery, have been found present in the mouths of healthy people, and it behooves residents of the tropics to give scrupulous care to these exposed mucous membranes by frequent cleansing with distilled water or some mild antiseptic.

The normal acidity of the stomach is probably one of the preventives to the entrance of living amebæ into the alkaline intestine, and its derangement which is so frequent in warm countries, is increased materially by fermentation and other abnormal conditions in the mouth. The hands are so often in contact with materials containing amebæ, and in many instances are used in the preparation and serving of food, that their cleanliness always should be a consideration. Above all, methods of prevention must not be used spasmodically. Safety depends on constant and consistent adherence to a well-defined plan of living, and no departures from it, even in minute details, should be made without securing the approval of competent authority. Among the better classes, the theoretical outline of living is generally very good, but a violation in the details of its consistent execution is extremely common and flagrant. Examples of this might be cited almost indefinitely, and the manner of infection is more often traced to such lapses in daily practice rather than to a fault with the general plan of living.

Public Health.—The medical profession is partly to blame for all these things. Our first duty is to guard the public health, and in the Philippine Islands there is certainly no other one thing so important as to teach the public a proper technic of living.

Finally, I wish again to emphasize the fact that amebiasis is an infectious disease, and to point out the desirability of judicious municipal ordinances and regulations looking to its control. I hardly need call attention to the fact that its ravages do more to cripple government and private enterprise of all kinds, and conduce more to personal dissatisfaction with the country, than do those of all other infectious diseases combined.

The control of cases of amebic dysentery by public-health officers is neither necessary nor desirable, but regulations requiring the report of every case with certain data would accomplish good in several ways. Valuable facts for future work could be obtained, and what is more important, such a procedure would particularly call forth public attention and interest, and would prepare public opinion for co-operation and support in controlling the disease.

For several years the military have been improving regulations looking particularly to the prevention of this disease, and results of these precautions are shown in the following figures[1]: During the month of July, 439 patients, drawn from 2,742 troops, were treated at the first reserve hospital, and of this number 9 were suffering with amebiasis. During the same month 318 patients, from approximately 2,500 civil employes, were treated at the civil hospital by private physicians, and of this number, 90 were suffering from amebiasis. During the month of July, therefore, over 3 per cent. of 2,500 civil employes suffered from amebic dysentery, while but 3 per cent. of 2,742 soldiers were treated for the same trouble.

There are business houses here whose employes live according to sanitary rules laid down by a physician, and such a practice should extend to civil employes and be more general among the public.

A civil employe arriving here from the United States gains his ideas of how to live from lay sources, and in the military he receives his information from published regulations. Provision by which employes of the Civil Government could receive proper instruction in the elements of prevention, would repay such efforts by increased efficiency, just as it has proven to be the case in both the military and in private enterprise.

TREATMENT.

General.—Successful attempts in the classification of dysenteries from an etiologic standpoint are so recent that the great majority of the literature relating to the treatment is of but little value in its application to intestinal amebiasis (amebic dysentery), which is now a generally recognized etiologic clinical and pathologic entity—a disease different from other forms of intestinal flux in many essential particulars.

In general, it may be said that one form of treatment, in Manila at least, is now quite commonly in use, but the tendency is too much to routine. I wish to emphasize in the beginning that any routine treatment of this disease will prove unsatisfactory in an unnecessarily large number of cases. There is no disease with which we have to deal which requires more careful study of individual cases and greater variation—within limits—in the manner of applying remedial measures.

Before instituting treatment of any kind, the patient should have a careful physical examination, and the history should include, particularly, efforts to specifically locate the manner of infection. Palpation of the abdomen, in connection with the history, will usually furnish considerable evidence of the duration of the disease, and, what is more important, the location of the lesions in the bowel. A weekly record of the weight will always be of service, and is one of the best indications of progress.

The treatment of the patient should be governed somewhat by the findings made at the physical examination, by the clinical manifestations, which are so varied in this infection, and by the probable duration of the disease at the time the patient comes under observation.

Acute dysenteric manifestations, whether they come on early in the disease (which is rare), or as an exacerbation in cases of some standing (which is frequent), require the same general measures as those applicable to acute colitis from other causes. The patient should be confined to bed, and should be required to use the bed pan; the diet should be fluid, in the form of peptonized milk, pressed meat juice, whites of eggs beaten

1. The figures used here have been furnished by Maj. J. M. Bannister, surgeon, U. S. A., commanding officer First Reserve Hospital, Manila, by Dr. H. E. Stafford, attending physician and surgeon, civil officers and employes, and by a number of other physicians in Manila. My thanks are due these gentlemen for their courtesy.

up with soda water, lime juice and soda, etc. The pain may be controlled by local applications or by opium, which can be given internally in the form of Dover's powder or paregoric, or subcutaneously as morphin. Calomel and salines, and sedative or cold water enemas, are also useful.

After the subsidence of the acute symptoms and in all other cases, the general measures should be much less severe. It rarely is necessary or even desirable to confine patients to bed, and, in the great majority of cases, in the absence of decided dysenteric manifestations or symptoms of some complication, carefully directed exercise exerts a most beneficial influence.

It will be found a good rule to confine all patients to their rooms during the first few days of the treatment because of some of its disagreeable features, and exposure to the hot sun is, of course, to be avoided at all times. In the early evenings and early mornings, however, a drive will often accomplish more good than many doses of tonic medication, and where patients have comfortable home surroundings, it will rarely be necessary or advisable to send them to a hospital.

Where emaciation and anemia are advanced, particular attention must be paid to building up the general health, and with well-nourished patients treated early in the disease, care must be used to maintain this condition during the more or less lengthy and trying period of active local treatment.

Diet.—Notwithstanding the possible presence of extensive ulceration, the appetite and digestion often remain good, and when we consider the local nature of the disease and that, excepting complications, death frequently results from asthenia, it is readily seen how urgently necessary is a sufficient amount of nutrition.

The tendency, at least in Manila, has been to unnecessarily limit the diet in the ordinary type of cases; but the greatest reason for any such restriction is to limit the mass of fecal matter in the colon, where it may interfere somewhat with the efficacy of local treatment. When the stomach and small intestine are deranged, and sometimes when this is not the case but where clinical manifestations show involvement of the cecum or upper colon, a selected diet is indicated; and when the rectum is very irritable, such a restriction quite frequently appears to increase the tolerance for the enemas. But, in the more usual type of cases, there is little evidence that a liberal diet interferes in any way with the efficacy of the local treatment; in fact, quite the contrary often may be observed. In some of the more advanced infections in which emaciation and anemia are progressive, and where, as is often the case, the patient has no desire for the usual liquids, etc., a carefully prepared beefsteak will be relished and borne with comfort. The amount of residue in such instances does not need to be considered, for it may be disposed of by a simple enema given a half hour before the usual local medication, a procedure which, in any event, is often useful.

It has come to be my custom in cases of the ordinary type, and in all where severe clinical manifestations have subsided, to allow a very liberal diet; forbidding only irritating foods and foods such as are likely to ferment, and those leaving a large bowel residue. In the class of cases in which the cecum alone or the cecum and the ascending colon are involved, the clinical manifestations are often very slight, and extensive ulceration may be present before the nature of the disease is suspected. Treatment of these is difficult because of the care necessary to reach the lesions by enemas, and because of the soft fecal matter usually clinging to the mucus membrane in this part of the bowel. A fluid diet sometimes makes a material difference in the treatment, but even here an occasional saline cathartic or a large simple enema once or twice daily will usually accomplish more and at less expense to the patient's strength than a reduction in the amount of food.

Change of Climate.—This is an important factor in treatment. Alone it is not a specific therapeutic agent in any sense of the word, but it is an especially valuable aid, particularly in old, emaciated cases, and should be employed, where possible, with all patients who do not react to treatment in local environment. However, except under extreme necessity it should never be recommended nor patients allowed to pass from observation without first having a course of local treatment, and great caution should be exercised in advising a change to those who have symptoms of some of the more common complications. In nearly all cases the improvement is but temporary, unless treatment is continued, and for that reason patients should have specific directions to consult a physician on arrival at their destination, and, where practicable, letters should be given explaining the condition.

Drugs.—The list of drugs which have been used in dysentery and vaunted from time to time, many of them as specific, is too long even to mention, and, so far as they may have any specific curative properties in the type of the disease which is under discussion, they are all useless.

It requires no very extensive observation to show that this practice of drug giving is a much abused one, and the actual harm done by it is not inconsiderable. There was a time in this country when such things were excusable, but with the knowledge obtained by experience and research, their continuation as routine treatment deserves the severest condemnation.

There are a few drugs which, on account of their very extensive use, deserve special consideration. First, the various salts of bismuth, particularly the subnitrate and subgallate, are both useful therapeutic agents within limits, but their abuse in the treatment of amebiasis is very great. In the absence of the more rational local treatment, in combination with some of the other internal remedies, bismuth may be a very useful drug, and at other times is probably very nearly harmless, but, when given at the same time quinin enemas are being used, it undoubtedly does do harm.

Observations made at necropsies furnished abundance of evidence in support of this statement. As is well known, these salts are insoluble in the intestinal canal, and so their action is largely mechanical. In a bowel which has been ulcerated for some time, they impregnate the edges of the ulcers and all other more or less dead tissue to such an extent that at postmortem, even after the most thorough washing, enough is often left to make the surface almost black. The coating formed is so tenacious and fastens itself so firmly about the ulcers that quinin and other curative substances applied locally, have little opportunity to reach the most essential places. There is also ample clinical evidence corroborating these statements. I have seen patients who have taken bismuth internally together with quinin enemas for considerable periods of time, while amebæ were constantly present in the stools, but, on substituting small doses of a saline for the bismuth, a permanent

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disappearance of amebæ occurred within a comparatively short time. The more usual and equally tenable arguments against the indiscriminate use of this drug need not be entered into. The important consideration which may be amply demonstrated is, that the drug is not harmless, as it is popularly believed to be, but, during the time of local treatment, it is capable of doing much damage in a negative way, if in no other.

Much of the abundant literature about the use of ipecac is valueless because of the lack of sufficient clearness as to the type of the disease referred to by the writers who advocate the drug. Whatever may be its value in certain other forms of dysentery, it is quite certain that when given in the doses and in the manner prescribed by its most ardent adherents, it is not only useless, but may be dangerous in amebic infections of long standing. In small doses it undoubtedly acts as a tonic to mucus surfaces, if nothing more, and as such often may be administered with advantage in intestinal flux. In emaciated patients who have had the disease for a long time, and when given in the large doses which are usually recommended, its results are sometimes disastrous. I have seen three cases (with postmortem) in which, in my opinion, it was the immediate cause of death. These were patients who should have remained alive for weeks, unless complications had developed, and one of them might have recovered under more rational therapy.

Magnesium sulphate and other salines have been much used in the treatment of dysentery, and where a cathartic is indicated in well-nourished patients, they are very satisfactory; but their routine use for considerable periods of time, particularly in patients in the more advanced stages of the disease, is not to be recommended. They have at least two specific actions; one is to increase the alkalinity of the intestinal contents and thus favor the propagation of amebæ; the other is to cleanse the mucous membrane and thereby allow greater efficiency of the enema. Further than when indicated as an active cathartic for this latter action, they should be used in this disease with caution.

There is some reason for the use of the mineral acids, especially hydrochloric acid and nitro-muriatic acid, and the efficiency of hydrochloric acid is increased almost always by its combination with pepsin; sometimes other digestive ferments are useful. In the vast majority of the usual cases, the acid pepsin solution has at least two favorable actions; first, that due to its acidity alone, and second, its activity in reducing or in preventing the nausea which is often a troublesome sequence to enemas; this condition is principally due to reversed peristalsis. For this purpose, neither the pepsin nor the acid alone are as satisfactory as the combination.

The so-called intestinal antiseptics are often of service in allaying fermentation, and possibly may also somewhat limit the number of bacteria. Salol or guaiacol carbonate in combination with minute doses of ipecac often exert a good influence, and the more recent preparation, acetozone, gives good results as an adjuvant in many cases. To get the best results from acetozone, it should be drunk freely in 1-5000 to 1-2000 solution, as much as from one to three or more liters being consumed in 24 hours. It is much more palatable when the solution is made in carbonated water, and one of the most satisfactory methods of prescribing it is to have it carbonated in syphons or ordinary soda bottles with directions to use instead of water. Its action as an intestinal antiseptic is, like other preparations, somewhat limited, but in cases where there is active fermentation of the stomach and upper bowel, it often gives good results. I have seen some unfortunate results follow the administration of celloidin coated capsules of this drug, probably due to rupture, in the intestine, of imperfect capsules and the consequent liberation of the chemical in concentrated form. Its use in enemas will be considered under the local treatment.

Strychnin and other powerful stimulants should be used with care during the administration of enemas on account of their stimulating action in the bowel. Strychnin, particularly, is a valuable general tonic and stimulant, but during the employment of local treatment it is best replaced by some of the more diffusible drugs; alcohol in the form of champagne, dry sherry, or punches, is usually grateful to the patient and satisfactory in results.

Except in those cases complicated with malaria, the internal administration of quinin, so highly recommended by some, is useless, and even when malaria is present, the objects sought are much better obtained by the quinin enemas which, if properly administered, will result in cinchonization of the patient. Indeed, this is one of the disagreeable features of this treatment in a very large percentage of cases.

Calomel has had many advocates on account of its supposed antiseptic action in the intestine, and given in small frequent doses it may exert a beneficial influence.

I have never seen satisfactory results from the use of sulphur. In fact, as stated before, there is no internal medication which is in the least sense specific in intestinal amebiasis, and such treatment should be directed to the improvement of the general health of the patient and to the alleviation of some of the prominent symptoms as they arise. All insoluble substances which coat the bowel are contraindicated during the time that the patient is being treated by enemas.

Local Treatment.—If properly carried out, this gives satisfactory results in the largest number of cases, but to insure success, constant care, close study of individual cases, and the surmounting of many obstacles are necessary.

The manner of giving the enema determines, in no slight degree, its efficiency. Routine is particularly dangerous, each case requiring careful consideration and variations should be made according to the indications.

The apparatus in private practice should consist of a glass irrigator of at least two liters capacity, enclosed in a metal frame, and in hospitals the large adjustable glass irrigators meet the requirements particularly well. Rubber bags are never satisfactory, for reasons obvious to those of experience in giving these enemas. The tube should be of very soft rubber, five or six feet long, and connected by a valve stopcock with the rectal tube, which in turn should be at least 100 c.m. in length, from 10 to 15 mm. in diameter and made of the best red rubber. It should be of moderate firmness, not so stiff as to be dangerous to the ulcerated bowel nor so soft as to easily fold on itself during introduction.

Contrary to what is often recommended, the opening should be in the end of the tube, well rounded, and the immediate extremity slightly contracted and hardened. The disadvantage of having the opening in the end has been said to be that it is much more likely to become closed by fecal matter or pressure; but, in my experience, this has not been the case. Such a rectal tube

will occasionally become clogged, but very rarely so when judgment is used in its introduction. The weakest point of this tube is its extreme end, and if any obstruction occurs during its entrance with the current flowing (as it should be under low pressure), it is quickly observed by a lack of pulsation in the soft delivery tube (which should always be under control of the operator's fingers), or by watching the fall of fluid in the irrigating tank, and such trouble may be quickly corrected by withdrawing the tube very slightly and waiting a few seconds until the fluid, which should be allowed to escape in a pulsating manner from the delivery tube by alternating compression and relaxation, has removed the obstruction by dilatation of the bowel. If the tube opens both in the end and on the side, the means of detecting an occlusion are the same as with the other. However, on account of the two openings, when the fall of fluid indicates a stoppage, the tube already may have been folded. This trouble usually begins at the eye, and several feet of loop may have been introduced before both openings are closed and the flow is stopped. In this case a correction of the trouble necessitates a further withdrawal and the turning of a knuckle of an inch or more of tube in the ulcerated bowel. Finally, with the tube opening at the end, there is obviously much less danger of mechanical injury to any deep ulcers which may be present. The tube with an opening on the side alone is, of course, not to be considered.

A very good position for the patient during the administration of an enema, and one which is usually most convenient, is the Sims position, with the hips well elevated. When practicable, it is still better to have the foot of the bed raised from 12 to 18 inches. The knee-chest position on the same kind of a bed is sometimes particularly satisfactory, both because of the ease in passing the tube and the ability to retain the fluid. With the rectal tube and anus well lubricated with clean castile or other mild soap, or with soft white vaselin, the tube, freed from air, is introduced through the sphincter. After a slight rest for the spasm of the sphincter to subside, the flow may be turned on under low pressure (controlled by the fingers on the delivery tube), and the latter is then slowly introduced to a distance of from 40 cm. to 1 meter or more, depending on the character of the case, the location of the lesions, and the patient's tolerance for the fluid. After the tube has been introduced to the highest point which is necessary, the rate of flow may be increased, and the amount of fluid to be introduced is governed by the bowel capacity or the patient's ability to bear the pain—which in some cases is excruciating.

Patients will often be found who will take from 3 to 4 liters with no great discomfort, but in the majority about 2 liters will be all that can be borne, and in some, not over a liter is practicable. Naturally this variation in quantity depends on the difference in bowel capacity, on its irritability and on the patient's idiosyncrasy to pain. Women, as a rule, are more satisfactory patients in this respect than men.

Several other factors help in introducing a large quantity of fluid into the bowel, but they can not always be determined without experiment. Bowel spasm comes on in nearly all cases during the entrance of the fluid. In some instances increased pressure gives the best results, while in others a decrease in, or a temporary stopping of, the flow will be found most satisfactory. Often, allowing a patient to change position during the flow will give relief, and if this is done with caution there is no objection to it. Occasionally a bowel is so irritable as to preclude the giving of an enema of sufficient concentration and quantity. This difficulty may be greatly relieved by giving one of warm water or of salt solution containing ¼ or ½ gr. of morphin a half hour before the medicated enema is introduced.

The presence of gas in the bowel always increases the pain caused by the enema, and hence in those cases in which there is considerable fermentation or in which the bowel has a large accumulation of feces, it is often well to give a preliminary simple enema. This causes little or no pain, it cleanses the bowel, and in this way allows increased certainty of action of the medicine to follow. Their use gives such happy results in many cases, and their inconvenience is so small, that I have employed them very frequently as a routine measure, even where there were no special considerations to be met.

After a full enema has been administered, a change of position usually enables the patient to retain it longer, and in addition may insure its reaching all parts of the colon. If the sloping bed has been used it will usually suffice for the patient to turn on the back with legs flexed, or on the right side, and if further elevation is desired it can best be accomplished by still further raising the foot of the couch. In every case, all practical methods should be applied to give the largest quantity of fluid which can be administered and retained, for, to secure satisfactory results, the diseased part of the bowel, which in the majority of cases is clinically the entire colon, must be distended and the fluid retained for from five to fifteen minutes.

Retention of the enema for less than five minutes hardly allows it to develop its full parasiticidal action, and when the fluid is held for more than fifteen minutes the result may be unnecessary inconveniences from the absorption of quinin. The latter is a very troublesome condition in many cases.

The temperature of the solution not infrequently makes a material difference in its tolerance. It has been shown that the amebæ, when they are in the moving stage, are most susceptible to the action of antiparasiticidal agents. This condition is interfered with by either cold or heat. For this reason cold solutions would appear at a glance, at least theoretically, contraindicated either as a vehicle for the curative medicine or as sedative applications immediately preceding the medicinal ones.

There is, however, another factor to be considered here, for while the cold increases the parasite's resistance to medicinal agents, it also, by causing it to encyst, removes its power of independent motion and its ability to cling to its surroundings, and therefore it may be much easier to flush from the bowel.[2]

Cold solutions, while quite disagreeable during their introduction, later often have a soothing influence on the mucous membrane, and, as a consequence, for some time, when other remedies fail to create tolerance in the bowel, I often use an ice water injection one-half hour before the quinin enema, and sometimes administer the quinin itself in cold solution.

After Tuttle's article more attention has been paid to this point. However, it must be remembered that the lowered temperature produced by cold injections in

2. Tuttle, in THE JOURNAL, Oct. 8, 1904, p. 1022, has recently reported good results in the treatment of amebic dysentery by the use of simple ice water enemas given frequently, and his success may be explained by mechanical removal of the parasite.

the bowel is only temporary, and that those amebæ which are not flushed out during this time are not destroyed, and their progress is but slightly delayed.

In order to secure whatever advantage might be attributed to the cold and at the same time to introduce the antiparasiticidal agent, a few old cases which were very resistant to treatment were placed on ice-cold solutions of quinin instead of the usual ones at the body temperature. This method has been used with about 20 persons in private practice, mostly among those who have not reacted well to the usual treatment. The results so far, while encouraging, have not been universally satisfactory.

Such ice-cold quinin enemas are often quite painful when they are first introduced, but this condition is only a transient one and is frequently followed by a sense of comfort rarely experienced when the solutions have a higher temperature. There is some local reaction, of course, but I have never seen any dangerous manifestations. It is much easier to reach the upper colon with such an enema, and this fact alone makes it useful in many cases.

A considerable variety of drugs have from time to time been recommended, but up to the present time the various salts of quinin have given the most satisfactory results and have been the most constantly and extensively used since their introduction by Lösch, in 1875.

If enemas of this drug are properly prepared and administered, the outcome in the majority of cases of moderate duration, is very satisfactory, and many of the disappointing results following its use are not the fault of the principle, but the result of routine and the failure to use it under the most favorable conditions.

There is apparently but little choice between the various salts of quinin, but, to be most serviceable, the solution should be an acid one. The strength used should vary from 1-1500 to 1-750, depending somewhat on the idiosyncrasies of the patient. A stronger solution than 1-750 is not required to destroy any amebæ which are subject to its action, and besides it is more irritating, and when retained produces unnecessary systemic effects from the absorption of the drug. A weaker one than 1-1500 does not assure parasiticidal action in a reasonable length of time, and is therefore not to be used.[3]

Accepting these statements as proved, their intelligent application may be of service in the local treatment of amebic dysentery, particularly in the selection of a solvent for use in the application of quinin or whatever other antiparasitic substances used in enemas.

Not infrequently one of the disagreeable features of the local treatment, whatever the medicine, is the nausea which follows and the consequent interference with digestion and nutrition. One would not think, therefore, of employing a sodium chlorid solution as a vehicle for quinin in such cases, but on the other hand, in certain well nourished patients with decided intolerance for enemas, this condition may be taken advantage of, and, if necessary, a sodium chlorid solution enema containing a quarter of a grain of morphin or one-tenth of a grain of cocain may be administered one or two hours before giving the quinin.

Recent researches have tended to show that the presence of living bacteria are necessary for the propagation of amebæ, and if this symbiosis is in reality a necessity to the life of the amebæ in the intestine, we have an increased incentive to use bactericidal local medication. Bacteria are quite generally considered as having pathologic significance in this disease, partly, no doubt, as a result of their own action, and in addition, the symbiosis referred to may result in metabolic changes which may vary with different bacteria and influence the pathologic action both of themselves and of the parasites. Whatever the manner of their action, the clinical importance of limiting the number of intestinal bacteria in this infection is fully recognized. Various kinds of antiseptic irrigations, looking to this end, have been used and recommended, but in satisfactory concentration they have usually proved either dangerous or impracticable.[4]

The bactericidal properties of acetozone are well known, and its action in acid solution on amebæ has been pointed out in Bulletin 18, Bureau of Government Laboratories. I have never used it alone in treatment, but in acid solution of 1-5000 to 1-2000 in combination with quinin 1-1500 to 1-750, or when used alternately with the quinin enemas, it often gives more satisfactory results than does quinin alone in cases in which it is tolerated.

The inconvenience in securing the solution for private practice, and its irritating effects in the colon, are the principal objections to it, and the latter is partially overcome when it is used in the cold enemas described above.

Alphozone used in the same manner as acetozone has recently given some encouraging results, and in some very chronic cases the happiest results sometimes follow the occasional substitution of an enema of 1-10 to 1-2 solution of hydrogen peroxid for the quinin one. In a like manner an occasional reaction brought about by an injection of a solution of silver nitrate does good, but the routine use of this drug is not usually satisfactory.

As to the number of enemas to be used, the tendency is to overdo. One enema properly administered is of more value than several given without consideration of the conditions. In the vast majority of cases, from one to three in the twenty-four hours will be found to be the most satisfactory, and, fortunately, this number fulfills the rational as well as the practical requirements.

Some of the most aggravated cases are those in which a catarrh of the lower bowel has been established by the previous use of enemas too frequently given, of too great a concentration, and which have been introduced into the lower colon in quantities of one liter or less. In not a few cases, owing to the physiologic action of absorbed quinin or from other causes, it will be found impracticable to give more than one enema daily.

3. The fluid used as a vehicle for the application of the quinin also deserves some thought. In 1884 Nothnagel showed that when sodium chlorid was placed on the peritoneal coat of the living intestine active antiperistalsis resulted. In 1894, Grutzner injected into the rectum physiologic salt solution in which was susnended finely divided hair, charcoal and starch. After six hours he demonstrated these substances in the small intestine and stomach. Hemmeter (1902) confirmed these observations, proving that active antiperistalsis followed the introduction of substances suspended in salt solution into the rectum of human subjects, a cat and a white rat. He further showed that these results were less certain or not to be obtained when solutions of potassium chlorid or hydrochloric acid were used. Fasting favored this antiperistaltic action and both diarrhea and constipation delayed it; the normal bowel gave the best results. Peristalsis was not arrested by this procedure, but continued to control substances well within the lumen of the bowel, while the antiperistaltic movements influenced only substances near the walls of the organ.

4. In 1902, Freer called attention to the results obtained by Strong in the experimental treatment of eleven cases of amebic dysentery with acetozone. The drug was given both internally and by enema. In these cases the results were encouraging. Of the eleven cases treated, two died, one from a complication of a liver abscess. The other nine at the time of the report were without any symptom of the disease.

Irritability of the anus and rectum may usually be avoided, but sometimes this condition occurs and it may prove very annoying. After each treatment the external parts should be washed with soap and water and bathed in some antiseptic solution, and when the irritation becomes excessive, a cocain suppository administered just previous to the enema will afford relief, but where possible this is to be avoided, for, in addition to reasons which are obvious, it may interfere with the action of the sphincter to such an extent as to allow the escape of fluid during the operation. Flushing the lower bowel with cold water or some mild soothing lotion after each treatment gives the most satisfactory results in these cases.

In many of the textbooks, caution regarding the maximum pressure to be used in the administration of enemas is enjoined in those cases showing advanced ulceration. Theoretically this is good advice, but in actual practice, in the first place, it is impossible to determine the extent of intestinal ulceration in amebic dysentery, and secondly, agreeing with Professor Osler, I must say that the danger from this source is small indeed—so much so that it is doubtful if it deserves consideration in the treatment of a disease where distension of the bowel is so necessary. In over five years observation in hospital wards, in private practice, and in the morgue, I have never seen evidence of such an accident.

Finally, I wish to emphasize that no recommended routine treatment will be found to be satisfactory in all cases of intestinal amebiasis. Each one requires careful study, and variations in the treatment should be made to suit special conditions, and to efficiently do this the physician should either himself administer or be present at the administration of at least the first few enemas given to every patient under his care.

APPENDICEAL AMEBIASIS.

Involvement of the appendix in amebic dysentery, as previously stated, is really a direct continuation of the diseased process from the intestines and may, therefore, be appropriately considered here.

Pathology.—In 100 necropsies on this disease the appendix contained lesions in fourteen. In six, the process was an active amebic infection, four times, in otherwise apparently healthy appendices, and in one the amebic process was secondary to chronic changes from other causes. One was an old chronic appendicitis (non-amebic) associated with a pericecal abscess (amebic), and seven others were those showing chronic lesions without amebic infection. Four of these seven, however, showed evidence of some acute inflammatory reaction, probably the result of close contact with the amebic process going on in the cecum.

In four of the six amebic cases death resulted from general peritonitis following perforation, three times in the cecum and once in the descending colon. This entire series was in American soldiers, and necropsies were performed by Dr. Strong and myself mostly during the year 1900. They were almost entirely chronic cases, which gave histories of months of diarrhea, and were in the last stages of the disease when received at the first reserve hospital.

In a more recent study of 50 fatal cases and in many clinical ones, particular attention has been directed to the involvement of the appendix as a complication. However, the statistical results in the fatal cases have in the main been confirmatory of those in the first series.

In every instance where the appendix showed amebic ulceration, this has been as a direct continuation of and secondary to a similar process in the cecum. Peritonitis following perforation of a gangrenous amebic ulcer in the appendix occurred in one case, but the cecum was also gangrenous. Without lesions, amebæ have never been found in the appendix.

Classification.—With these brief data we are better prepared to discuss the clinical side of the problem, which particularly concerns us in this paper. Where the records are complete, all cases which have shown lesions of the appendix postmortem have also given a history of clinical symptoms during life which indicated involvement of that organ. However, on the other hand, very few of the cases which have manifested clinical symptoms of appendicitis during life have shown lesions of this organ postmortem.

The highest mortality in intestinal amebiasis occurs where the cecum is involved, and as appendicitis is found but rarely, if ever, in any other class, it will be seen that postmortem examinations indicate a much higher percentage with appendicitis than actually exists when all classes of cases are considered. The very great majority of those suffering with amebiasis will not have symptoms of appendicitis during life, and this organ will be found healthy at necropsy.

From clinical and postmortem observations we learn that cases of amebic dysentery with symptoms of appendicitis during life may be divided into three general classes:

1. Those in which at operation or necropsy the appendix is not found to be diseased.

2. Those in which at operation or necropsy a chronic appendicitis, from other causes and without amebic infection, is found.

3. Those in which at operation or necropsy an amebic infection of the appendix is present.

Clinically, examples of the first class are very frequently met with, and sometimes at autopsy no lesions are found which would account for the symptoms during life. However, in one of my cases there was a pericecal abscess due to a perforation, and in others there was extensive ulceration of the cecum, both with and without adhesions to the omentum and, other structures, which accounted for the symptoms during life.

The second class is not infrequnetly encountered during life, and in the fatal cases there is often congestion, injection of the vessels and other inflammatory phenomena, due to close relation to the inflamed bowel, but without an amebic process or the presence of the parasites in the appendix.

The third class is the last in order of frequency to be observed in clinical practice, but is more frequent (seven times in the 150 necropsies) in the necropsy records, because, practically, all such cases are fatal.

As previously stated, these seven infections, with one exception, occurred in apparently otherwise healthy appendices, but it is important to remember here that in three of these the cecum was also gangrenous, and death resulted from peritonitis following perforation, twice in the cecum and once in the appendix. In the remaining case the amebic infection was secondary to an appendicitis from other causes.

These statistics show that the majority of appendiceal infections are associated with the very severest involvement of the cecum, where death usually results from a perforation in or near the deeply ulcerated and often gangrenous organ, the type of case corresponding so closely to similar ones without infection of the ap-

pendix that a differentiation during life is often impossible. Sometimes when the infection is less intense in the cecum, and the lesions in the appendix more important, the clinical picture of appendicitis is more definite and may with care be diagnosed during life.

The importance of being able to distinguish during life the three classes of cases discussed, from appendicitis due to other causes, as well as to differentiate them from each other is obvious.

As a rule, no great difficulty, at least in the tropics, will be encountered in differentiating the amebic processes located in or about the cecum from appendicitis due to other causes. In the former there is generally a history of dysentery or diarrhea, and a microscopic examination of the stools will usually show amebæ, while in the latter a history of previous attacks may often be secured. The general symptoms in the amebic infection are usually less severe, and differ to a certain extent from those of the latter. Fever is more commonly slight or even absent; nausea is less frequent (unless the patient is taking enemas), and vomiting is rare. Rigidity of the rectus muscle is nearly always less decided, or even absent, and while pain on deep pressure is quite constant, it is rarely of the very acute type so often seen in other forms of appendicitis. A tumor mass, as in other forms of appendicitis, is usually present, but it more often has a soft boggy character in the region of the cecum, and is rarely circumscribed, definite and low in the right iliac fossa, as in other types of appendicitis. Sometimes, however, where there is a definite appendicitis due to amebæ, it may be ushered in as a sharp attack of acute pain, with some muscular rigidity, perhaps a certain degree of fever, an increase in the number of bowel movements, and a leucocytosis of from 10,000 to 20,000.

A differentiation of the various types of amebic infections which give the general symptoms of appendicitis during life is a difficult task, and it is even impossible in many instances to say that the appendix is at all involved.

Symptomatology.—Where the cecum, whether alone or with the appendix, is the seat of dysenteric lesions, pain in the region occupied by these organs is quite a constant symptom, and it may vary from a dull aching one to that of the most acute radiating type. The acuteness of the pain depends, to some extent no doubt, on the character of the lesions, the stage of the disease, and the general condition of the patient. In well-nourished individuals moderate ulceration in or just below the cecum may cause considerably greater pain than similar lesions in chronic emaciated cases. Some of the most deceptive clinical pictures are encountered when the omentum becomes adherent around the cecum, ascending colon, abdominal wall and liver. When such adhesions form in the region of the appendix, considerable thickening occurs, and palpation, besides confirming deceptive conclusions, is to be performed with care on account of the danger of rupture.

In the second class of cases, when a chronic adhesive appendicitis has been aggravated by close relation to the diseased cecum, the patient's history will usually show similar attacks antedating the dysentery. The symptoms usually come on somewhat slowly, are rarely urgent, and are frequently relieved by a saline cathartic.

We have already seen that in the third class the lesions of the appendix are but a continuation of similar lesions in the cecum, and in the rare instances where they are not, the clinical picture is the same as that of an appendicitis from other causes.

Treatment.—The majority of cases of amebic dysentery give no symptoms indicating involvement of the appendix during life; no amebæ and no lesions are found in this organ postmortem, and, therefore, treatment directed especially to the appendix is worse than useless.

When symptoms suggesting appendicitis arise during the course of the disease, the medical treatment is that which is applicable to appendicitis from other causes, plus high large quinin enemas. Saline cathartics are particularly useful if the patient is in a condition to justify their administration. Thirty grains of Rochelle salt will often relieve, more or less permanently, the symptoms of appendicitis from this cause.

In the early stages of amebic dysentery in the majority of cases, the appendix could be removed without immediate bad results, but the probable future of the patient must be considered, and this is not best conserved by performing an operation which, for a greater or lesser time, necessitates a discontinuance of rational treatment of the disease, and which uses up more or less of the strength and energy so necessary for its successful therapeutics. Such precipitate surgery has, in the past, undoubtedly determined the fatal result in some instances.

CONCLUSIONS.

We have shown what a variety of pathologic conditions may produce symptoms of appendicitis in intestinal amebiasis, and how difficult and often impossible it is to differentiate these during life. They are produced most frequently by lesions in the cecum without involvement of the appendix where surgical intervention is contraindicated.

Somewhat less often such symptoms follow aggravation of an existing chronic appendicitis due to other causes, by the continuation of inflammation from the cecum, and nearly always without amebic involvement of the appendix. Operation is rarely found to be necessary, provided medical treatment of the disease is rationally administered.

Finally, in a small number of cases, such symptoms are due to amebic involvement of the appendix as a continuation of a similar process from the cecum and early operation is indicated.

In a minority of these appendectomy may be satisfactorily performed, but more often the operator will find a gangrenous cecum and increase his mortality rates.

In the 150 necropsies there were two cases where operation would probably have saved or prolonged life. One of these was amebic appendicitis without extensive ulceration in the cecum, and the other a pericecal amebic abscess.

A surgeon should be called in consultation in all cases of intestinal amebiasis with symptoms suggesting appendicitis, and questions of operation decided only after careful consideration.

In closing, I wish to thank Dr. P. C. Freer, superintendent of the Government Laboratories, for his assistance in editing the manuscript.

Electrotherapy for Affections of Optic Nerve.—Menn writes from Breslau to the *Ztft. f. diet. und physikalische Therapie*, viii, No. 8, that he has obtained fine functional results from application of electricity to affections of the optic nerve. He used stronger currents and made longer applications than those hitherto currently employed, and attributes his success to these more vigorous measures.

DISSEMINATION OF STREPTOCOCCI THROUGH INVISIBLE SPUTUM.

IN RELATION TO SCARLET FEVER AND SEPSIS.

ALICE HAMILTON, M.D.
(From the Memorial Institute for Infectious Diseases.)
CHICAGO.

INTRODUCTION.

Since the completion of this investigation an article has appeared in the *Archiv für klinische Chirurgie*, by Mendes de Leon, describing experiments conducted along the same lines as my own, and having practically the same results. Dr. de Leon calls attention to the work done in Flügge's laboratory which proved the importance of droplets of sputum in the dissemination of tuberculous infection, and comments on the fact that the sputum as a source of infection has apparently been overlooked by surgeons. He instituted experiments similar to those of Flügge, but modified so as to reproduce the conditions of the operating room, and succeeded in proving that the mouth of the operating surgeon is a fruitful source of streptococcal infection. During an ordinary operation, not performed before a class, a surgeon speaks from 150 to 500 words. Plates laid on the table before a number of surgeons while they spoke the above number of words were found to contain about 75 colonies, the larger number of which were streptococci; the colonies of diplococci, staphylococci, sarcinæ following in this order of frequency. Tested on rabbits and on guinea-pigs, five out of ten of the strains of streptococci proved virulent, six out of ten of the diplococci and two out of three staphylococci. Antiseptic mouth washes were found to be of no value; the number of colonies on the plates was slightly diminished, but the proportion of streptococci increased, for the effect of the wash was to increase the amount of thin watery saliva, and it is this kind of saliva which seems to play the chief part in the spread of streptococci.

Dr. de Leon recommends a mouth guard of special construction, which, on test, was found to hold back almost completely the droplets of sputum.

It will be found that my experiments add little that is new to those of Dr. de Leon. They will serve, however, to confirm his statement as to the dissemination of streptococci by the sputum expelled in talking, and also to show that forcibly expelled breath, even in the absence of speech, is a source of infection.

SCARLET FEVER.

These experiments were undertaken primarily in connection with scarlet fever. In the Memorial Institute for Infectious Diseases one or two occurrences had suggested the possibility that the streptococcus might pass from one patient to another, and that a scarlet-fever patient with severe streptococcal complications might become a source of danger to the uncomplicated cases in the same ward.

The theory that the streptococcus is the causative agent in scarlet fever is finding daily fewer supporters and bids fair to be abandoned entirely, yet the importance of this organism as the cause of most of the complications of scarlet fever has suffered no diminution. Streptococcal infection is responsible for most of the cases of severe necrotic angina, for the otitis media and its consequent mastoiditis and meningitis, for the purulent rhinitis and conjunctivitis, for the suppurating glands, the purulent synovitis, many of the cases of bronchopneumonia, and probably for all cases of true nephritis, while many deaths in the course of this disease are deaths from sepsis and not from scarlet fever proper. Rumpl, indeed, believes that in the majority of cases this complication is more important than the disease, and that, from the fourth day on, the symptoms caused by the streptococcus usually predominate and may completely mask the scarlet fever proper.

Recent bacteriologic studies in scarlet fever show that the streptococcus is present in the large majority of cases. It was found in 40 out of 41 throats (Weaver), 4 being pure cultures. It was found in pure culture in 38.8 per cent. of cases of pseudomembranous pharyngitis (v. Ranke). Babes found it in the internal organs of 17 fatal cases, and Baginsky and Sommerfeld found it in the blood and internal organs of 82 fatal cases.[1] In many instances it is apparently of a low virulence, in others it seems to be non-virulent, for scarlet fever may run its course without any streptococcal complications, even when the streptococcus is present on the tonsils. The appearance of such complications, therefore, must mean invasion not only by the streptococcus, but by a virulent strain. It is a common laboratory procedure to change a non-virulent into a virulent strain or to heighten the virulence for the lower animals. Sometimes it can be effected simply by transplantation to a more favorable nutrient medium; e. g., blood serum or ascites fluid, or in other cases it is done by passing the germ successively through susceptible animals. In this way an enormous increase of virulence can be attained. Experiments in heightening virulence for human beings are, of course, out of the question, yet there seems no reason to doubt that the same thing may be true of them also, and that a given organism, only slightly virulent for man, may have its virulence raised by similar methods; e. g., by changing its habitat from a normal pharynx to one altered by catarrhal inflammation, or by passing successively from patient to patient. We may imagine a streptococcus of low virulence in the throat of a scarlet-fever patient being disseminated into the air of a hospital ward and, when inhaled by a second patient, increasing in virulence and setting up a necrotic pharyngitis in its second victim, a general sepsis in the third, and so on until it reaches the point when it is capable of causing the fulminating type of sepsis.

In an epidemic of scarlet fever it is sometimes noted that while many of the cases are mild, all the children in a certain family are taken with a malignant, fatal form of the disease. Usually we explain such occurrences as instances of a family predisposition to or unusually low resistance to the scarlatinal infection. Possibly, however, such cases may be due to successive infection with an increasingly virulent strain of streptococcus.

That cases of scarlet fever with septic complications may be a source of danger to others is no new idea. In the hospital of the Pasteur Institute in Paris all scarlet-fever patients are kept strictly isolated in separate rooms up to the period of convalescence. I was told when visiting this institution that the result had been a very low average of cases with complications and sequelæ. The same statement is made by R. E. Lauder, medical superintendent of the Borough and Port Fever Hospital, Southampton, England, who not only separates

1. A full review of the literature of this subject is given in an article by Ludvig Hektoen, "Streptococcemia," THE JOURNAL A. M. A., March 14, 1903.

the acute cases from the convalescents, but isolates all those with discharges from nose, ears or eyes, and all with swollen tonsils or lymphatic glands. As a result he claims a decided diminution in the number of patients with such complications.

At the Memorial Institute for Infectious Diseases, Chicago, several occurrences have pointed to the transmission of virulent streptococci from scarlet-fever patients to normal persons through the respiratory tract. One of the staff has twice contracted severe purulent rhinitis and pharyngitis when in attendance on cases of scarlet fever with unusually extensive streptococcal complications. Another developed a severe tonsillitis with chills and fever the first time he visited the scarlet-fever ward, and streptococci were found in his throat and blood. Still another developed a streptococcal tonsillitis after his first visit to the ward, and again after performing an autopsy on the body of a child dying of scarlatinal sepsis. In this hospital, as in others, it has been observed that the nurses are apt to have sore throat of varying severity during the first days of their service.

During April and May, 1904, an effort was made to prove whether or not scarlet-fever patients actually disseminate streptococci into the surrounding air. The method employed was the following: Sterile Petri dishes were filled with rabbit's blood agar (one part of defibrinated rabbit's blood to eight parts of glucose-peptone agar), and were used to catch the invisible droplets of sputum expelled from the mouths of scarlet-fever patients when coughing or crying, or when breathing heavily with the mouth open. Fifty cases were examined from the Memorial Institute, from the Cook County Hospital and from the Scarlet Fever Hospital of the New York Department of Health. At the same time that the plates were collected, cultures on glucose agar were made from the tonsils and examined for the presence of the streptococcus.

The method does not give very uniform results. It is impossible to regulate the amount of sputum which will reach the plate, for a vigorous cough may not produce as many colonies as a more feeble one, and crying may not produce as many as simple breathing, the variations depending on the dryness of the mouth and the thickness of the sputum. It was found impossible to make any absolute rule as to the time of exposure of the plates, or the distance at which they were held. For the majority of cases two plates were used; one held at from 12 to 15 centimeters from the mouth, the other at from 18 to 24. The patient was asked to cough twice while each plate was so held. If the cough was feeble the plate was held nearer, if very vigorous, farther away. In the case of crying babies the plates were held for one-half minute in front of the mouth. Some of the patients were too ill or too young to cough, and then the plate was simply held before the mouth for almost a minute, provided the patient was breathing rather forcibly and with the mouth open. In spite of every effort to attain uniform results the colonies on the plates varied in number from nothing to 175.

On blood agar the colonies of streptococcus are usually easily distinguishable, for the hemolytic action of this organism on rabbit's corpuscles results in the formation around the colony of a ring or halo which is either clear or greenish, according to the hemolytic power of the individual streptococcus. The halo around the pneumococcus colonies is more decidedly green than that around the streptococcus (Schottmüller), and the staphylococcus colonies, which also have a clear halo, can usually be distinguished easily by their greater size. In all cases of doubt the colonies were transferred to bouillon and examined the next day.

As a result of the study of these 50 cases, it was found that streptococci were present on the tonsils of 47, as shown by the cultures from swabs. It was expelled by coughing or crying in 20 out of the 34 patients who could either cough or cry, and by expiration in 13 out of the 16 patients who were too ill to be made to do so. A greater proportion of positive cases were obtained from the patients over 10 years of age than from those under; the feeble attempts at coughing made by the younger children and the feeble expiration often resulted in plates with very few colonies. Seventeen of the 23 cases over 10 years of age had streptococci on their plates, only 16 of the 27 under this age.

The proportion of streptococcus colonies to those of other organisms varied from five out of nine colonies to one out of ninety-eight. The proportion also varied in the two plates taken from the same individual. Thus in one case the first plate had 23 colonies, with no streptococci; the second—held farther away—had 43, of which 12 were streptococcus colonies. The plates collected from the 16 patients who were too ill or too young to cough contained colonies ranging from 3 up to 100. There were streptococcus colonies in 13 of those 16 cases; in 7 of the 13 this organism formed over 25 per cent. of all the colonies present.

These 50 cases represented almost all varieties of scarlet fever, and were taken during the first three weeks of the disease. Fifteen had severe pharyngitis, but the number of streptococci expelled by these cases did not average higher than the number expelled by the others.

These experiments prove that living streptococci are expelled into the air by scarlet-fever patients, and this not exceptionally, but in as much as 66 per cent. of all cases. In all probability some are non-virulent—those from the cases in which the angina is mild in character. In others there is reason to believe that they are moderately virulent, and in some the virulence may be of a very high grade. Animal experiments to determine the degree of virulence of a given streptococcus are notoriously unsatisfactory, as an organism which has been rendered highly virulent for one species of animal may be only slightly so for another, and an organism isolated from a case of scarlatinal septicemia may not prove at all virulent for the lower animals. We must, therefore, be satisfied with probabilities, but these are certainly strong enough for us to proceed on the assumption that a strain of streptococcus which is virulent for one human being is virulent for others also. Since, then, it has been shown that the streptococcus is expelled into the air surrounding the patient, we are justified in urging that those patients who are suffering from severe streptococcal complications should be isolated from uncomplicated patients, or that in hospitals where isolation is impossible a gauze mask should be used to cover the patient's mouth.

SURGICAL SEPSIS.

The theory of the "unity of the streptococcus" has gained ground of late years, although Schottmüller still distinguishes two species on the ground of cultural variations and different degrees of virulence. Schottmüller himself, however, states that the streptococci which cause erysipelas, phlegmon, septicemia, puerperal sepsis, the complications of scarlet fever, diphtheria, etc., are indistinguishable from each other. The same species

apparently may cause processes as different as a paranitium and a case of fulminating puerperal sepsis, according to the degree of the virulence of the strain, the character of the tissue invaded and the resistance of the individual. It is easy to show experimentally that the same organism can be used to produce different pathologic processes. The streptococcus isolated from a case of angina in man may set up either abscesses, erysipelas or general sepsis in a rabbit. The streptococcus from the body of a child dying of scarlatinal sepsis at the Memorial Institute for Infectious Diseases caused not only a local suppurative process in the finger of an interne who assisted at the autopsy, but also a severe tonsillitis with albuminuria, and it is certainly probable that the converse might also occur; that the organism which has caused a tonsillitis in one person might, if inoculated in a denuded surface of a second, set up suppuration in the latter. If streptococci are expelled from the throat of the nurse or of the surgeon at the time of an operation or of a surgical dressing, there seems to be no reason why they should not gain lodgment in the tissues of the patient and be responsible for a local suppuration or a general sepsis.

Every hospital with a surgical or maternity service has histories of mysterious epidemics of septic infection which could not be explained satisfactorily—which occurred apparently spontaneously and could not be traced to any neglect of ordinary precautions on the part of surgeons or nurses. I have tried to discover whether in any hospital such accidents were coincident with epidemics of sore throat among the nurses, internes or attending surgeons, but apparently the idea is a new one, and no definite information can be obtained as to such a coincidence. Slight sore throat is so common in our climate in winter that it occasions little remark, and even when it attacks a large number of nurses at once it may not actually incapacitate any of them and is quickly forgotten. In one hospital I find that this was suggested as a possible cause for a succession of cases of streptococcal infection in a surgical service. After all possible causes had been inquired into in vain, one of the house physicians called attention to the fact that several nurses on surgical duty at the time had been suffering from a form of tonsillitis caused, apparently, by the streptococcus.

In order to discover whether the air expelled by healthy adults may actually be a source of streptococcal infection, a bacteriologic examination was undertaken, during the months of April and May, of the invisible sputum of 50 persons, 40 of whom were hospital nurses, and 10, physicians connected with hospitals. We know that streptococci are present on the tonsils in normal throats in the great majority of cases, if not invariably. Hilbert and Ruth Tunnicliff each examined the tonsils of 100 normal throats and found it in all. The bacteriology of the saliva has been studied by Netter, Hübener, Barthel and v. Dungern, all of whom found streptococci, the last as a constant inhabitant of the saliva. The technic used in this study was the same as in the former, except that in addition to the invisible sputum expelled in coughing, that expelled in speaking also was examined.

A culture was made from the throat, and plates were held before the mouth at a distance of from 12 to 36 centimeters while the individual coughed twice, and at a distance of from 9 to 24 centimeters while he counted aloud up to 100. The 50 persons were all in good health, although a few, who will be referred to later on, had slight sore throat, but not enough to keep them from their usual work.

The following results were obtained: Streptococci were found in 46 of the 50 cultures taken from the tonsils. Colonies were found on 33 of the plates held before the mouth while coughing, and on 26 of those held while speaking. In several cases they were found on one set of plates, but not on the other, so that the number of those who expelled streptococci, either in coughing or in speaking, or in both ways, rose to 42, almost as many as those whose throat cultures contained streptococci. It was found that the streptococci were expelled to a distance of at least 24 centimeters from the mouth in speaking, to a distance of at least 36 centimeters in coughing, and that whispering, with its forced expiration, produced more sputum than speaking in an ordinary voice. The percentage of positive cases in this series of experiments is greater than in the first series, owing to the fact that the persons examined were adults, and the expulsion of sputum much more vigorous than in the case of the scarlet-fever children.

As in the plates from the scarlet-fever cases, the number of colonies varied greatly—from nothing to 225—and also the proportion of streptococcus colonies—from one in 30 to 30 out of 39. The plates held before the mouth while speaking had about the same number of colonies and the same proportion of streptococcus colonies as the plates held while coughing. The plate from one nurse contained 35 colonies, 28 of them streptococcus; that from another 58 colonies, 39 of them streptococcus; that from a physician had 74 colonies, 34 of them streptococcus.

Among the 50 patients described above were 9, of whom 5 had, at the time the examination was made, a mild angina, the other 4 had had tonsillitis of moderate severity within the preceding three weeks. All of these 9, with one exception, expelled streptococci in speaking or in coughing, the one negative case being a staphylococcus infection. In three of these cases the streptococcus formed 50 per cent. or more of all colonies on the plates.

It has already been stated that animal experiments are unsatisfactory, so far as the determination of the virulence of an organism is concerned; nevertheless, as a matter of curiosity, seven of the organisms isolated from these cases were injected into as many guinea-pigs in the dose of 1 per cent. of the body weight, for as the guinea-pig is not very susceptible to the streptococcus, a relatively large dose must be used. Four of the seven strains thus tested proved pathogenic, the animals dying after from one to three days and the streptococcus being recovered from the peritoneal cavity and organs. It is not probable that the streptococci from the throats of these people engaged in hospital work were more virulent than would be those from the throats of persons engaged in other work, for Hilbert tested ten organisms isolated from the throats of healthy school children, and found them all pathogenic to white mice.

The conclusions to be drawn from this second series of observations are obvious. Surgeons and nurses may themselves be the source of septic infection in their patients even after all the usual precautions as to disinfection have been observed. The surgical dressings are prepared beforehand and handled during the operation by nurses with unprotected mouths, who necessarily speak or whisper to each other while so engaged, and who can hardly guard against an unexpected cough.

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The surgeon is, however, a far greater source of danger than the nurse. His head is close to the wound, sometimes within a few inches of it, he must give orders to his assistants, and even while he is silent, the strain incident on a difficult operation is liable to make him breathe harder with his lips apart; the short forcible expirations carrying—as shown above—numerous droplets of germ-laden sputum. Especially is the danger great when the operation is performed before a class, and the surgeon talks continuously, explaining his procedure as he works.

It is a matter of ordinary observation that there is a great difference in persons as regards the amount of saliva in the mouth. We have all talked to individuals who expel droplets of saliva into the air to a decided distance from their mouths. I was told by a student in a large medical college in Chicago that he had often noticed at the clinics of a certain surgeon that, when the light was from a certain direction, he could see, from his seat in the amphitheater, a continuous spray of saliva coming from the mouth of the surgeon while he discoursed to the class and conducted his operation. Obviously, protection to the mouth, of such sort as to catch and imprison the droplets of sputum, should be a routine precaution for surgeons and for surgical nurses during operations.

The danger of transmitting streptococcal infection seems to be increased during and for at least three weeks after an attack of sore throat, and it would seem advisable for surgeons to take special precautions during that time and for nurses to be assigned to duties other than surgical.

SUMMARY.

Streptococci are expelled from the mouth in the invisible droplets of sputum by coughing, speaking, whispering, crying or breathing forcibly through the mouth. They are expelled to a distance of at least 36 centimeters.

Thirty-three out of 50 scarlet-fever patients, most of them children, were found to expel streptococci in coughing, crying or breathing; 42 out of 50 normal adults were found to expel streptococci in coughing or in speaking.

The streptococci thus disseminated may be inhaled by others, and may set up streptococcal complications or may fall on the tissues exposed at an operation and cause suppuration.

Just as the virulence of an individual strain of streptococcus may be raised by planting on certain nutrient media or by passing through susceptible animals, so, in all probability, it may be raised by passage from one human being to another.

In this way may be explained the conversion of a case of simple scarlet fever into one of scarlatinal sepsis, and in the same way may be explained the cases of surgical sepsis which occur after all usual precautions have been taken.

Cases of scarlet fever with streptococcal complications should be isolated from cases without such complications.

Surgeons and nurses should have their mouths protected during the time of an operation.

My thanks are due to Dr. Hektoen, who suggested this investigation, and to Dr. W. M. Park of the New York Department of Health, and Dr. Baum of the Cook County Hospital, Chicago, for courtesies shown me in the collection of the material.

Special Article

IMMUNITY.

CHAPTER XI.

THE NATURE OF THE SUBSTANCES CONCERNED IN AGGLUTINATION.

Terms. Two substances are necessary for the phenomenon of agglutination; one, the active or agglutinating substance, exists in the serum, while the other, the substance acted on or the agglutinable substance, is presented in the bacteria. The agglutinable substance is generally supposed to be passive in the reaction, while the agglutinating property seems to possess a ferment-like element, which acts on the agglutinable substance. Agglutinin, the term used in the preceding chapter, is now generally applied to the substance in the serum. Recently the bacterial constituent has been called agglutinogen, because of the belief that the agglutinable substance, when introduced into the animal body, stimulates the latter to the formation of agglutinin; hence agglutinogen means, not agglutination producing, but agglutinin producing. These shorter terms will be used for the sake of brevity.

The tendency to consider agglutination a vital phenomenon has been shown to be incorrect; for bacteria which have been killed may be agglutinated by serums and even by some purely chemical substances.

Agglutinogen. The presence of agglutinogen in an organism may be demonstrated in three ways: 1. The mere fact of its agglutinability by a serum is evidence of the presence of an agglutinable substance. 2. If during infection or immunization the serum acquires agglutinating properties, the organism possesses an agglutinogenic substance. 3. If an organism is mixed with a serum containing the specific agglutinin, and later is removed by centrifugation, the resultant disappearance of agglutinin from the serum, which may be demonstrated, shows that something in the bacteria (agglutinogen) has combined with the agglutinin.

Distribution of Agglutinogen. The location of agglutinogen in the bacterial cells has received some discussion. There is a tendency to believe that it exists in the cell envelope or perhaps on its surface. It appears to be formed in the cell, and, in some cases, it may be excreted into a surrounding medium; certainly when bacteria die and disintegrate agglutinogen is liberated. Filtrates of the cultures of certain organisms (entirely free from bacterial cells), when injected into animals, will cause the formation of agglutinins. Also, just as a micro-organism is able to absorb the agglutinin from its specific antiserum by a process of chemical union, so a filtrate of the type mentioned is able to neutralize the agglutinating power of the serum; here, too, a chemical union is assumed between the free agglutinogen and the agglutinin.

The Precipitation Reaction. The filtrates of certain cultures exhibit another phenomenon when they are mixed with their specific antiserums; this has to do with the bacterial precipitins of Kraus. If, for example, the filtrate of an old typhoid bouillon culture is mixed with antityphoid serum, a distinct precipitate is formed which eventually settles to the bottom of the tube. This is a specific reaction, and does not occur if the filtrate is mixed with some other immune serum. It is thought by some that this so-called precipitable substance in the filtrate is identical with the agglutinable substance (agglutinogen), but this point is still the subject of investigation.

Agglutinogen may also be extracted from micro-organisms by chemical processes. The presence of the substance in the extracts becomes manifest when immunization with them causes the formation of an agglutinating serum. This, again, is the "test of immunization."

The agglutinogen of one bacterium is not identical with that of any other. If they were identical immunization with the

one would yield an agglutinating serum of equal power for both cells; this, however, is not the result obtained. On the other hand, the agglutinins of two different organisms may coincide to a certain degree, as will be shown under the subject of "group agglutination." Certain experiments go to show that the agglutinin of even a single micro-organism is not a uniform substance. One portion is heat susceptible, being destroyed at 62 C., while another portion is said to resist a temperature of 165 C. Such technical questions continue to be investigated.

Multiplicity of Agglutinogens.

Agglutinogens are said to pass through semipermeable membranes, while agglutinins do not. Smith and Reagh distinguish two kinds of agglutinogen in those bacteria which possess flagellæ, one peculiar to the cell body, and the other to the flagellæ. Agglutinin may be precipitated completely from a serum by the sulphates of magnesium or ammonium, when the salts are used in proper concentrations. Because of their reaction to such precipitating agents, agglutinins are thought to belong to the globulin fraction of serums; whether globulins or not, they are precipitated with them.

Flagellar and Somatic Agglutinogens.

Agglutinins resist digestion with pepsin and papayotin, but are destroyed after prolonged exposure to the action of trypsin. An agglutinating serum which is dried and kept free from moisture and the action of light, retains its power unaltered. Similar to agglutinogen, agglutinin is thought not to be a uniform substance, one portion being susceptible to heat, and another portion resistant; these have been called alpha and beta agglutinins.

Properties of Agglutinins.

It is convenient to speak of the reaction between agglutinin and agglutinogen, and of the process in the body through which agglutinins are formed, in terms of the side-chain theory. Accordingly, if that constituent of micro-organisms which we have termed agglutinogen is the substance which stimulates the tissues to form agglutinin, we must assign to it a haptophorous group through which it may unite with the receptors of the tissue cell. This haptophore comes into play again in the union between agglutinogen and agglutinin, which precedes agglutination. There is no reason for assigning to agglutinogen any other structure than this single haptophore; it is a passive body, similar to antitoxin, and has no other function than that of uniting either with cell or with agglutinin.

Structure of Agglutinogen.

Agglutinin also must have a haptophorous or binding group, inasmuch as it enters into combination with agglutinogen. In addition to this binding group, experiments have shown that agglutinin possesses a toxic constituent, which is analogous to the toxophorous group of the toxin molecule; in this case, however, it is called a zymotoxic or zymophorous group because of its supposed ferment-like activity (Fig. 6). The analogy with toxins goes further, in that the zymotoxic group of agglutinin may degenerate or may be destroyed, leaving the haptophorous group with its binding power for agglutinogen practically unaltered; these are agglutinoids, just as toxins when changed in a similar way are called toxoids.

Structure of Agglutinin.

Zymotoxic Group.

A serum which is rich in agglutinin may be changed into one rich in agglutinoid by exposure to a temperature of from 60 to 75 C., and by the action of acids or alkalies; the change also takes place spontaneously in the course of time, when the agglutinin is in solution.

Agglutinoids.

Agglutinoids are detected by methods analogous to those used in the recognition of toxoids. If toxoids unite with all the antitoxin in a solution, there naturally remains no antitoxin to unite with true toxin which may be added subsequently. Similarly, if all the agglutinogen in a mass of micro-organisms has united with inactive agglutinoid, agglutinin which is added subsequently would have no point of attack and the reaction of agglutination would not occur. So we may say that when bacteria are treated with a serum, which at one time was agglutinating, and the bacteria are thereby made insusceptible to the action of a fresh agglutinating serum, the former serum contained agglutinoids.

Sometimes it is found that even a fresh serum, when concentrated, will cause less agglutination than when diluted. This has been referred to the presence of agglutinoids which have a stronger affinity for agglutinogen than has the agglutinin; when of this character they are called proagglutinoids, and accordingly are analogous to the protoxoids mentioned earlier. As the serum is diluted the concentration of the proagglutinoids becomes less, and at a time when they are so dilute that they have no influence on the reaction, the agglutinins are still present in such strength that agglutination is brought about.

Proagglutinoids.

The presence of some salt is necessary for the occurrence of agglutination. Bordet found that if the salts were removed from the serum and from the suspension of bacteria by dialysis, and the two were then mixed, agglutination did not occur; if a small trace of sodium chlorid was added the reaction took place promptly. Furthermore, if the serum was completely removed from the bacteria by repeatedly washing them in distilled water, it was found that the microbes had absorbed the agglutinin, but the latter remained inactive until the salt was added.

Two Stages in Agglutination.

This experiment not only suggests a haptophorous as distinguished from a zymotoxic group, but also indicates that agglutination consists of two phases. The first phase represents the union of agglutinin with the bacteria, while in the second are included the other changes necessary for the clumping of the organisms; the second is supposed to represent the activity of the zymotoxic group. The action of the salt, just cited, is unknown. It has been suggested that it may favor osmosis between the bacteria and the surrounding fluid, or that it may in some way affect their adhesiveness and the attraction existing between individual cells.

The properties of serums which are of interest in immunity are now being studied by chemists, notably by Arrhenius, the celebrated Swedish chemist. The study of mass action, of chemical equilibrium between agglutinin and agglutinogen, for example, and of the dissociation of the compound after it has once formed, are subjects under investigation, but which are too technical to be entered on here.

"Group agglutination" has been referred to. By this is meant the ability of some antimicrobic serum to agglutinate certain other organisms which morphologically, biologically and often pathogenetically, are closely related to the homologous bacterium. In these instances, the agglutinating power is greatest for the homologous organism, and the degree to which the heterologous organisms are agglutinated is to some extent an index of the proximity of the relationship of the latter to the former. Antityphoid serum has been found to agglutinate the psittacosis, colon, paracolon, and paratyphoid bacilli and *Bacillus enteritidis*, but the action is never so strong as on the typhoid bacillus itself. We are to understand that this power to agglutinate related organisms represents something more than the normal property of the serum; there has been an actual increase in agglutinin for the heterologous bacteria as a result of infection or immunization by the specific organism.

Group Agglutination.

Having typhoid fever in mind, this is a rule which works both ways. Infections with the colon bacillus and related organisms, and sometimes with organisms not closely related, as the staphylococcus, may cause an increase in agglutinin for the typhoid bacillus. The importance of this fact is evident, and it may explain the positive Gruber-Widal reaction sometimes found in acute tuberculosis, epidemic cerebrospinal meningitis, etc.

Inasmuch as the highest agglutinating power is always manifest against the homologous organism, this is spoken of as the chief agglutinin (*Hauptagglutinin*) of the serum, while the weaker agglutinins for other organisms are called partial or adventitious agglutinins, or coagglutinins (*Mitagglutinin*).

Chief Agglutinin and Co-agglutinins.

The phenomenon of group agglutination would seem to violate the specificity which we are in the habit of attributing to the reactions of immunity; yet an adequate explanation has been offered for the occurrence. It is probable that the protoplasms of all cells have certain constituents in common, and that the closer the relationship between two different cells the greater is the similarity of their constituents. In view of this probability, Durham has used the following illustration in the explanation of group agglutination: The typhoid bacillus contains certain constituents, agglutinogenic molecules, which one may designate as a, b, c, d, and e; these differ among themselves in unknown respects, but each is able to stimulate to the formation of a corresponding agglutinin. The serum, then, would have the agglutinin molecules A, B, C, D and E, also differing among themselves, but having at least one property in common —that of causing agglutination of the typhoid bacillus by uniting with their corresponding agglutinogenic molecules. In this sense nothing could be more specific. The *Bacillus enteritidis*, closely related to the typhoid organism, may possess the agglutinogenic molecules c, d, e, f, g, and h, and following the principle expressed above would stimulate, in the body, to the formation of the agglutinin molecules C, D, E, F, G and H. Inasmuch as the agglutinogens c, d and e are common to the two bacilli, the agglutinins C, D and E would affect either of the two

Specificity.

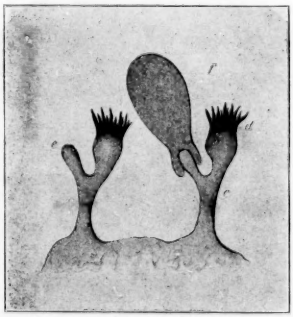

Fig. 6.—Graphic representation of receptors of the second order and of some substance uniting with one of them. *c*, cell receptor of the second order; *d*, toxophore or zymophore group of the receptor; *e*, haptophore of the receptor; *f*, food substance or product of bacterial disintegration uniting with the haptophore of the cell receptor. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii.

organisms. The typhoid serum, however, would contain five agglutinins for the typhoid bacillus and only three for the *Bacillus enteritidis*, consequently the action would be stronger against the typhoid bacillus. The same line of reasoning would explain the increased agglutinating power of an anticolon serum for the typhoid bacillus.

A further elaboration of this principle may be made in a case in which two different strains of the same organism (typhoid bacillus) have somewhat different agglutinogenic molecules; consequently the homologous immune serums for these organisms might not coincide in their agglutinating powers for a third strain of the bacillus.

In view of the points mentioned, it is clear that specificity of a given serum may be determined only by diluting the serum to such an extent that the co-agglutinins practically are eliminated, the chief agglutinin being present in so much greater concentration that it is still able to agglutinate the homologous bacterium.

Importance of Serum Dilutions.

Theoretically, it is also important for the specificity of the reaction, that the particular strain of the organism to be used for the test correspond in its agglutinogenic molecules or receptors with those of the strain used for the immunization; the agglutinogenic receptors should be typical for the organism.

It is doubtful if group agglutination occurs among all closely related bacteria, inasmuch as Kolle found that it did not exist among the vibrios.

It is thought possible that the multiple agglutinating power of a serum may be caused by mixed infections in some instances; although this is to be kept in mind, one should not overestimate its diagnostic importance, because a similar multiplicity may result from infection by a single microorganism.

Mixed Infections.

The explanation of the production of agglutinins by the body, according to the conception of Ehrlich, is similar to that already given for the production of antitoxins. That is to say, the agglutinin molecules are cast-off cell receptors, the overproduction of which has occurred as a result of their union with the agglutinogenic molecules of the bacteria. The antitoxin receptors were relatively simple, having no other demonstrable structure than that of the haptophorous groups through which they unite with the corresponding molecules of toxin. We have recognized in agglutinin receptor two groups, a haptophorous and a zymotoxic, consequently it must have this same structure when it is still a part of the cell. Ehrlich designates it as a receptor of the second order, which, being defined, is a receptor in which a haptophorous and a zymotoxic group exist as integral parts of the molecule (Fig. 6).

Production of Agglutinins. Ehrlich Theory.

Receptors of Second Order.

In accordance with the side-chain theory, the ability of an animal to form agglutinins for a certain organism would depend on its possession of receptors of the second order which are able to unite with the agglutinogenic receptors of the bacterium. It is well established that different animals may not form serums with equal agglutinating powers for an organism. The following is a concrete example: Wassermann immunized rabbits, guinea-pigs and pigeons with a strain of the colon bacillus, and tested the three serums with fifteen other strains of the same organism. The serum of the guinea-pigs readily agglutinated the strain which was used for immunization, but scarcely affected the others. The serums of the rabbits and pigeons also agglutinated the homologous culture, but the co-agglutinins which they possessed did not affect other strains equally. Consequently, it was supposed that the cells of the three animals contained a limited number of receptors in common, whereas other receptors which were present in one of the animals were largely wanting in the other two.

Inagglutinability was mentioned as a characteristic of certain bacteria, especially the bacillus of Friedlander. This condition is much more important when it involves an organism which usually is agglutinated with ease. In some instances, the typhoid bacillus when freshly cultivated from a patient, or, indeed, from contaminated water, has been found to resist agglutination by a strong serum; the same organism after a period of existence on artificial media becomes agglutinable. Widal and Sicard noted that often the serum of a typhoid patient would not agglutinate the bacillus which had been cultivated from the patient's own body, although the same serum would agglutinate laboratory cultures. Cultivation of the typhoid bacillus at 42 C. will cause it to lose its agglutinable property, but it may be re-established by subsequent cultivation at lower temperatures. It seems that this variation must be due to some change in the bacteria, i. e., in the agglutinable substance. It is possible that the organism, during its existence in the animal, becomes immunized against the action of the agglutinin just as the animal becomes immunized against the toxic action of bacteria. This condition in the micro-organisms would then be represented by a great excess of agglutinogenic receptors, so that a much greater amount of agglutinin would be required to cause clumping. It is readily seen how the use of an inag-

Inagglutinability of Some Organisms.

glutinable strain of the typhoid bacillus would affect serum diagnosis.

We are to consider that in the phenomenon of agglutination a reaction of a chemical or physico-chemical nature takes place between the agglutinin of the serum and the agglutinogen of the micro-organisms, the actual clumping following as a consequence of this reaction.

Theories of agglutination have to do, not with the existence of agglutinin and agglutinogen, but rather with the nature of the reaction between the two, and the influences which bring about the clumping after the reaction has occurred. The original theory of Gruber supposed that the serum so affected the bacteria that they became sticky; consequently, as they came in contact they were, so to say, glued together. Dineur thought changes occurred in the flagellæ of the organisms, a theory which is untenable because some bacteria are agglutinable which do not possess flagellæ. Emmerich and Loew refer agglutination to the action of an enzyme which is produced by the bacterium itself, a theory which is not given general credence. Bordet excludes the vitality or motility of the organisms as factors, and believes that the process is purely a physical one, because of the fact that some known chemical substances may be made to precipitate or to agglutinate certain other chemicals; the theory presupposes some change in the molecular attraction between the microbes and the surrounding fluid.

Theories of Agglutination.

Other theories have to do with the question of precipitation. As previously stated, when the filtrates of cultures of certain organisms are mixed with their corresponding immune serums, precipitates occur in the mixtures. It was mentioned that the substance in the filtrate which takes part in the precipitation may represent in part the agglutinable substance which has been excreted by the bacteria. Nicolle supposes that the agglutinable substance resides in the external layer of the bacteria and that when the serum is added a coagulation occurs in the envelope, rendering coalescence with the envelopes of other individuals possible. The theory of Paltauf is somewhat similar; the agglutinable substance finds its way to the surface of the bacterium and is precipitated by its union with agglutinin. This shell of coagulated substance accounts for the sticky character which the envelope acquires, according to the theory of Gruber. Paltauf cites observations which tend to show that some substance actually is extruded from the micro-organisms, and that in properly stained specimens it can be seen as a precipitate surrounding and between adjacent organisms.

The multiplicity of theories leads one to suspect that the true nature of the process remains obscure.

(To be continued.)

Clinical Reports

DECAPSULATION OF THE KIDNEYS FOR BRIGHT'S DISEASE.*

KARL SANDBERG, M.D.
Surgeon in Chief to the Tabitha Hospital.
CHICAGO.

Introduction.—The question of decapsulation of the kidneys as a remedy for nephritis is still an open one. Its originators and early advocates, Ferguson and Edebohls, are still practicing it and advocating it as enthusiastically as at first, but many surgeons either have refused to try it or have discarded it after trial. Many have studied the subject experimentally on dogs, but no additional information seems to have been derived from these experiments. Several oculists condemn the operation in cases where the vision already is affected. In many cases, however, decapsulation has been of immediate and striking benefit to the patient; and the medical profession must decide whether this benefit is permanent or only temporary, and, if temporary, whether or not it is of sufficient value to justify the operation. The remedies at our command in cases of nephritis are few in number and of more or less doubtful effect, and it would seem that any new plan of treatment holding out sufficient hope of benefit should be given a thorough trial. To reach definite conclusions the cases must be perfectly selected, closely observed, and, so far as possible, fully reported, with remote as well as with immediate results.

Patient.—Mr. L. P. R., Norwegian, aged 35, married.

History.—He came to the United States in the early part of 1903, and has been employed here as assistant to a surveyor. He has never been ill in bed except for a day or so at a time. He has four brothers and three sisters living and well. His mother died of old age, his father of some pulmonary disease of two weeks' duration. His occupation in Norway was that of a non-commissioned officer. His habits are good. He drinks a glass of beer occasionally and chews some tobacco. About Christmas, 1903, he contracted a very severe cold which confined him to bed for about a week. In February, 1904, he began to pass bloody urine about every hour during the day and several times during the night. Then he began to notice swelling all over his body and was taken to Cook County Hospital, where he remained for two weeks, during which time the general swelling disappeared, but his condition otherwise remained the same.

Fig. 1.—Microscopic section. A. Fibrous and hyaline glomerulus. B. Round cell infiltration. C. Distended blood vessel.

Examination.—On admission to the Tabitha Hospital, March 5, 1904, he looked anemic, but the physical examination of his body otherwise was negative. He had some cough and expectoration, and the sputum was examined for tubercle bacilli, but none was found.

Urine: The first twenty-four-hour specimen of urine measured 2,325 c.c., with a specific gravity of 1,008; of a light amber color, with considerable blood coloring matter; of acid reaction, and of a cloudy appearance. A large quantity of both nucleo-albumin and serum-albumin was found, the percentage being 7.5, with a percentage of urea of 1.5. Microscopically a great number of granular and some hyaline casts, quite a few erythrocytes and some leucocytes were found. On March 8 samples were taken from each kidney by means of the Harris segregator. The urine did not differ much from the two sides, the quantity of albumin being higher on the right, 11 per cent., than on the left, 8 per cent.

His pulse and respiration were normal, with an occasional slight rise of temperature.

* Read at the meeting of the Northwest Branch of the Chicago Medical Society.

Operation.—On March 11 decapsulation of both kidneys was performed under chloroform anesthesia, the operation being completed in one hour. The capsules were pushed backward over the kidney, but were not removed. Both kidneys were large and of a dark color. There was very free serous and bloody discharge through the large gauze drains for several days.

Postoperative History.—During the week following the operation the temperature ranged between 98 and 102.5 F.; the pulse and respiration, however, remaining almost normal. Examination of a twenty-four-hour specimen of urine on March 13, two days after the operation, showed a drop in the percentage of albumin to 3 per cent., the quantity being 2,050 c.c. and the specific gravity 1,010. A twenty-four-hour specimen taken two days later only contained 1,450c.c., the percentage of albumin being increased to 5 per cent. From then on the quantity of albumin gradually decreased, so that on March 21 and 22 it was only 1.5 per cent.; the quantity remaining about normal. After the first week the patient's temperature practically was normal. While the percentage of albumin continued to decrease down to 1 per cent. and less, the quantity now again began to increase. On April 14 the urine had become of a natural color, nearly clear, with only 0.5 per cent. of albumin, specific gravity, 1,007, amount in twenty-four hours 4,100 c.c., no erythrocytes, leucocytes or hyaline casts to be found, only a few granular casts being present.

On April 19 the patient complained of pain in the left ear. On inspection a large cast of wax was found and extracted without, however, giving any relief; his temperature that afternoon went up to 99.8 degrees and remained slightly elevated the following day, during which there was some serous discharge from the same ear. The next day there was still more discharge and the temperature suddenly went up to 105. On the following day, April 22, vomiting set in and during the dressing of the ear the membrane ruptured and pus flowed from the middle ear. This was followed by a slight decrease in the temperature, but on the following day he began to cough and to expectorate rusty-red mucus, and dullness was found over the lower lobe of the right lung; the patient also became jaundiced. For nine days he was in a very serious condition, and during this time the urine became reddish-black and contained blood cells and 8 per cent. of albumin. On the ninth day a crisis took place and from then on his temperature, pulse and respiration were almost normal. On May 4 the urine had again assumed a much better appearance, containing only 1 per cent. of albumin, which, however, on May 14, was increased to 3.5 per cent., the patient suffering from sore throat with a rise of temperature. The temperature remained elevated for about two weeks and he was left in a feeble condition and greatly reduced in weight. From now on his recovery progressed without any further interruption, the temperature became normal, the percentage of albumin gradually decreased and the urine otherwise became more and more normal cept in quantity, which increased. His weight increased about forty pounds and he was feeling well. Examination of the urine on August 2 showed a slight trace of albumin, too small to be measured, no casts or blood cells, acid reaction, light amber color, a slightly cloudy appearance, a specific gravity of 1,012 and a quantity of 3,750 c.c.

Pathologic Report.—Dr. Peter Bassoe reports as follows: The section received for examination is small, measuring 4 mm. in its greatest dimension. Of the glomeruli present several are converted into hyaline fibrous tissue and adhere to their capsules; others are swollen and engorged with blood. In places the epithelial cells of the convoluted tubules are swollen and disintegrating; many of them, however, are fairly well preserved. All vessels are dilated and filled with red cells. Many collecting tubules are dilated and filled with blood and interstitial hemorrhages are seen. There are small collections of mononuclear round cells in several places and also general increase in adult fibrous tissue. These findings indicate the presence both of chronic interstitial changes and of an acute exacerbation.

Result.—He left the hospital on August 13, has since moved to North Dakota, where he is working on a farm, looks well and feels good. On December 8 he forwarded me by express a twenty-four-hour specimen of his urine. The quantity was 2,200 c.c., specific gravity 1,017, appearance cloudy, percentage of urea 2, one granular and no hyaline casts were found, and some leucocytes. A trace of albumin was reported from the laboratory. This, however, was so small that I was unable to see it in two tests (cold and warm nitric acid) made at my office before sending the specimen to the laboratory. While the patient, on account of the serious complications that arose, was obliged to remain in the hospital for over five months, the progress in the beginning was so satisfactory that it would seem reasonable to assume that barring these complications his recovery would have been complete in about two months.

The result of the operation seems to have been all that could be asked for up to date and it only remains for the future to decide as to its permanency.

684 North California Avenue.

IMMEDIATE CLOSURE OF TRACHEOTOMY WOUNDS.

MILES F. PORTER, M.D.
Professor of Surgery and Clinical Surgery in the Fort Wayne College of Medicine.
FORT WAYNE, IND.

Tracheotomy wounds are usually treated by the open method, whether the tracheotomy has been done for the removal of a neoplasm, or of a foreign body, or for dyspnea due to infection. In the presence of infection, it is unquestionably better to drain the wound, but in the absence of infection, it would be better to close the wound, provided, of course, that the cause of the dyspnea has been removed.

Immediate closure lessens the danger from pneumonia and from infection occurring in the wound itself, it shortens the convalescence and reduces to the minimum the deformity due to the scar; the latter being of particular consequence in females.

I firmly believe that the mortality in these cases may be lessened by immediate closure of the wound, and it seems to me that the morbidity may be decreased by adopting this method; the deformity certainly is lessened thereby.

In support of this opinion the following cases are reported:

CASE 1.—Baby B., aged 2½ years, girl, was referred to me by Dr. W. D. Calvin, Sept. 29, 1904.

Operation.—Tracheotomy, below the isthmus, was done at Hope Hospital a few hours after the accident. A scarfpin, with the head lodged at the bifurcation of the trachea and with the point presenting at the lower part of the tracheal wound, was seized with forceps and removed. The wound in the trachea was not stitched, but the overlying tissues were coapted with subcutaneous stitches and adhesive plaster. A small drain cut from a No. 8 F. catheter was placed in the lower angle of the wound down to the trachea, and was removed on the third day. The wound healed by first intention and the child left the hospital on the third day.

CASE 2.—Baby M., aged 3 years, girl, was referred to me by Drs. Veasy and Maloney of Avilla, on Dec. 25, 1904.

History.—Ten hours prior to admittance to Hope Hospital half of a peanut kernel had lodged in the larynx. The dyspnea had been continuous, and the child's condition when seen was very grave. The foreign body could not be felt with the finger in the mouth.

Operation.—Little anesthesia was required, the A. C. E. mixture and ether being used. A low tracheotomy was done, the isthmus of the thyroid was pulled upward, and the incision in the trachea extended in that direction until the foreign body, which was firmly wedged in the glottis, could be seen and removed. The trachea and overlying soft parts were coapted with fine catgut, and the skin with adhesive plaster. A tiny drain was left in the lower angle of the wound for twenty-four hours. The wound healed by first intention and the child was taken home on the eighth day.

The placing of drains was unnecessary, but was done because of the lack of confidence which one is likely to feel when trying a new method. In the first case, the tracheal wound was not stitched for the same reason. This, too, I think, was a mistake, as stitching the trachea prevents infection of the wound from that source. In the first case, considerable time was taken in endeavoring to locate the foreign body with the aid of the laryngoscope; in cases wherein the dyspnea is at all marked this is an error. If the foreign body can not be felt with the finger it is better to open the trachea at once. If the dyspnea is continuous and severe, one may confidently expect to find the body fixed somewhere between the bifurcation of the trachea and the glottis. If, on the other hand, the dyspnea is severe at times with intervals of free breathing it indicates that the foreign body is acting as a ball valve. My intention in writing this paper, however, is to call attention to the fact that it is better to treat tracheal wounds by immediate and complete closure, save in those cases where there is dyspnea or infection, than by the open method, which is the one in vogue.

New Instrument

A NEW CURRENT CONTROLLER.

G. BETTON MASSEY, M.D.
Attending Surgeon, American Oncologic Hospital.
PHILADELPHIA.

With the renewed interest in the constant current as a conveyer of ionized bodies for the destructive sterilization of cancerous growths now shown by many physicians who but recently employed the Roentgen rays alone in the treatment of malignant growths, the question of proper apparatus for electrochemical surgery is one of much importance. Unless provided with good instruments, it is evident that the first requisite for the development of special skill in this work is wanting, and that imperfect results are sure to follow any attempt to put these methods into practice.

Plain speaking on this point is most essential. In the city of New York, with its many manufacturers of electrotherapeutic apparatus, not a single controller worthy of use in the cataphoric applications of the constant current has ever been made. In Chicago, good controllers have been made for some time, but until a very recent date the meters furnished in that city were worse than toys, for they deluded the physician as to the strength he was actually passing through the patient, the needle remaining at zero at times, with as much as, say, 80 milliampères in circuit. Recently a good meter has been put on the market in Chicago, and of my own city I can state that a good controller has been procurable for some time, if the physician knows exactly what to order.

With Chicago offering apparatus that controls the current easily, but blindly, and New York apparatus that does not even control it properly, the urgent need of a "physical section" of the American Medical Association is evident. Water will not rise higher than its source, and until the medical profession is educated to the point of knowing the physical problems involved in the use of natural forces in medicine, the instrument makers can not be expected to supply the want, and what is virtually quack practice with quack apparatus will rule, even in the offices of our otherwise well-educated leaders in medicine.

It is indeed a singular fact that otherwise progressive physicians, who daily use the electric light, telephone, electric railway and other developments of electric science of equally fundamental character, all of which have appeared within the past twenty years, are yet content to limit their therapeutic use of the constant current to methods crystallized by Remak and Erb some forty or fifty years ago.

The two central points in a constant current apparatus, either for the ordinary applications or for electrochemical surgery, are a controller by which the current may be turned on absolutely without shock from zero to the strength desired, and a meter that shall be accurate and remain accurate, and at the same time be free from undue resistance and heating effects. All else is merely accessory, though a cabinet has much value by permitting a ready use of other currents from the same treatment poles.

The new controller here described (Fig. 1) is a further development of the graphite controller which I devised in 1887, and which was later improved by Jewell of Chicago. To adapt it to the large amperages required in the cataphoric treatment of cancer the controller has been greatly enlarged, the diameter of the graphite circle being increased to 12 inches. This permits of the most gradual attainment of currents of any strength, from a fraction of a milliampère to 1,500 milliampères, the source of the supply being either the 110-volt direct current mains, or a battery of dry cells. To further adapt this controller to permit the 110-volt mains to be used in the most delicate work in electrochemical surgery, such as the removal of hairs, destruction by electrolysis or cataphoresis of minute growths about the eyes or in other sensitive situations, where we wish to use one milliampère or less of current with only such voltage as required, a special arrangement has been added.

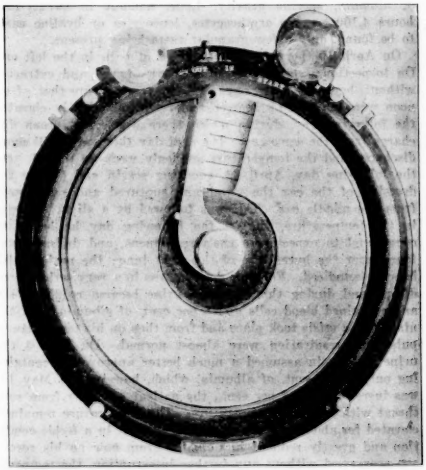

Fig. 1.—The universal controller. The positive and negative wires of the current mains are attached to the upper P. and N. binding posts. The lamp at the left is in series and may be cut out by the switch in the middle. The lamp to the right is in shunt with the patient.

This is simply the placing of a sixteen candle power lamp between the patient's poles, in parallel with the patient (Fig. 2). The result is that the great bulk of the voltage is expended on the lamp, which presents less resistance than the human body in these minute applications, while but a fraction will be expended on the body (Fig. 3). Care must be exercised by the manufacturer to place the meter in the patient's path only, and not in the path of this shunt lamp, otherwise the reading will show the amount of current flowing through the lamp as well as through the patient.

When this shunt lamp is turned on at its key and the current turned on at the crank arm the current will seek the three paths shown diagrammatically in Figure 3; so little of the voltage and milliampèrage traversing the meter and patient that the crank arm of the apparatus will need to be turned half over the area to obtain as much as one milliampère in this circuit, while the shunt lamp will show a dim glow. This slow

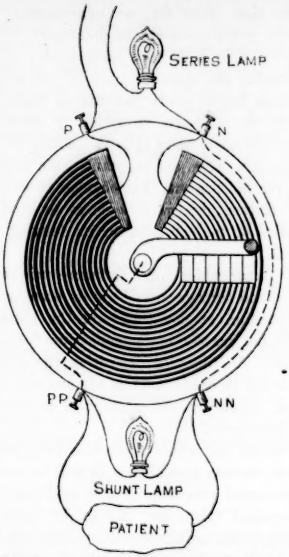

Fig. 2.—Diagram of wiring of the universal controller, showing series lamp above and shunt lamp below; the latter placed in the position to show its use most clearly. The meter must be intercalated between P. P. and patient, or else between N. N. and patient.

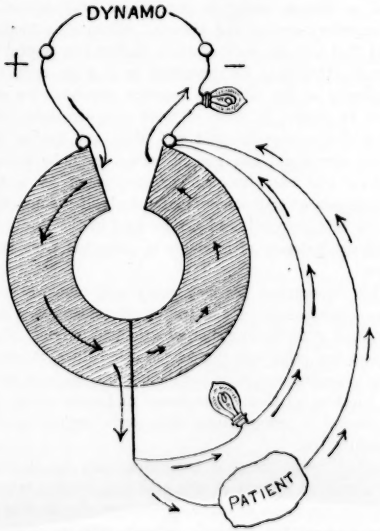

Fig. 3.—The universal controller. Diagram of the several paths of the current. To render the diagram clearer the crank arm of the controller, shown as a perpendicular line in lower portion of figure, is shown carrying the current beyond the graphite area directly instead of to a point within the circle. The current, coming from the dynamo or cells, is seen to divide into three paths, the greatest portion, shown by the size of arrows, passing directly through the shunt lamp, the next approximate amount passes through the patient, and the least through the graphite area alone.

turning on of the current lessens pain of itself, but the difference in pain excitation between, say, two milliampères from the full voltage of 110 volts and two milliampères turned on in this shunt circuit, is strikingly shown by making and breaking the circuit with the moist negative pole on one's hand between the thumb and forefinger.

In the controllers which I have had made this shunt lamp is fixed at the upper right corner of the instrument. To protect the graphite surface from carrying too much current in careless hands, and to cut down the current further for these finer applications, another lamp is placed in a permanent series with the whole apparatus, as shown in the upper portion of Figure 2. This lamp is shown in the upper left corner of Figure 1, and may have a cut-out switch when used by experts in major cataphoric applications.

With both of these lamps turned on, this controller is adapted to the most delicate applications of the constant current, cutting the 110-volt current down to a fraction of a milliampère and a slight voltage, and acting similarly to a current from a battery of cells. With both lamps turned off, it reverts to the original condition of a series controller for heavy constant currents, faradic currents and sinusoidal currents.

With both lamps turned on, the controller may also be used to light small incandescent diagnostic lamps from the street current, the small lamp being placed in the patient's circuit with the meter cut out.

At my request, the Frank S. Betz Co. has constructed a handsome cabinet in which this controller is the central feature, with switches that enable it to be used with either the 110 volt direct current or a battery of dry cells; the latter, when of good make, furnishing a most excellent and reliable current for the heaviest applications. A reliable meter of low resistance and an excellent faradic inductorium make the apparatus both complete and up to date.

The separate controller is furnished in a box, permitting it to be carried to operations wherever the direct current or a portable battery of dry cells is available.

The Neglect of Medical Jurisprudence.—There is no more important nor more neglected course in the medical college curriculum than that of medicolegal jurisprudence, says the editor of the *Medical Fortnightly*. This is apparent to one who scans the pages of the college catalogue, wherein are glowingly described the clinical advantages of this hospital with "400 beds" at the disposal of the college faculty, that hospital with "magnificent amphitheater" capable of seating so and so many students, etc. A bare line or two may refer to a course of lectures by some distinguished member of the legal profession on the legal features pertaining to the correct practice of medicine, the responsibility of the physician, etc. If we are struck with the absence of teaching on this subject in the college catalogue, how much more painfully are we impressed with this fact when we see medical men called on the witness stand as so-called "experts" in various lines of medicine. The spectacle, as we often see it, of the medical man posing as an expert witness in court cases is truly a sad one. In this country the qualifications for expert testimony are somewhat hazy. There is not much difficulty in convincing bar and bench in America of the expert qualifications of "any old doctor." . . . We have heard medical men giving testimony as experts in certain homicide cases in the criminal courts of this city. Most of them are by virtue of a confession of their medical training as little qualified to testify as experts as is a child to give a dissertation on the history of modern psychology. There is need for the teaching of the many scientific principles of forensic medicine in our medical schools. There is need for more men of proper training to devote themselves to this subject as a life-work. . . . Let some, at least, seek to uphold the standard of medicine before the bar of justice, where often human life and liberty is at stake, where often, we swear it, human lives have been sworn away on incompetent testimony, or knaves have escaped the hangman's noose because of poorly given or ignorant testimony.

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TRUTH AND POETRY CONCERNING URIC ACID.

XIII.

Let us turn to the work which has been done on uric-acid excretion in gout and see whether or not it permits us to draw any safe conclusions regarding the excess of uric acid now known to exist in the blood in this disease. In studying the physiologic side of uric acid, we made considerable use, it may be recalled, of investigations of uric-acid excretion in health in order to gain ideas concerning the formation of uric acid in the normal body. We made the probably legitimate assumption that the amount of uric acid destroyed in the healthy body is a tolerably constant quantity, and, since the amount of uric acid excreted in health is the algebraic sum of the uric acid formed and the uric acid destroyed, we thought it justifiable to make important deductions regarding uric-acid formation from a study of the uric-acid excretion. This simple method, however, is unreliable when we come to a study of uric acid in disease.

In gout, for instance, we know really almost nothing as yet regarding the function of uric-acid destruction; it may be undisturbed, but it is also possible that it is markedly altered; indeed, there are investigators who suggest that the main cause of uric-acid excess in the blood in gout may be an impairment of the normal process of destruction in the tissues. At the time when it was supposed that uric acid arises in the body as a result of the incomplete oxidation of albumin, it was common opinion that its increase was due to its imperfect destruction, that is, to a failure of the body to oxidize albumin completely to urea. Now that we know that the uric acid of the body arises chiefly from nucleins and not from albumin, there is danger of our losing sight of faulty destruction as a possible factor in causing an increase of uric acid in the blood; as Wiener points out, until it is disproved, this possibility should be borne in mind. An attempt was made by Klemperer[1] to subject the matter to direct experimental test. He instituted a comparison between the power of the blood in gout to destroy uric acid and that of the blood in health, but we need not refer to his conclusions, for we have already learned that the blood in health has scarcely any power of destroying uric acid, that function belonging to certain organs rather than to the blood. We believe that, thus far, no experiments with the organs from gouty cadavers to determine their power of destroying uric acid have been made; until these are forthcoming the question must be left open. Uric acid has been fed to gouty patients by Weintraud; he asserts that the uric-acid excretion is sometimes increased thereby more than it is in healthy individuals, but his findings were not constant. We must admit, therefore, for the present, that changes in uric-acid excretion in disease give us no clue as to whether it is the formation of the substance or its destruction which is disturbed.

Another factor which must influence uric-acid excretion in gout and further complicate its problems consists in the deposition at one time and the absorption at another of the masses of mononatrium urate of the gouty tophi. At times of deposition the excretion of uric acid would be diminished by the amount deposited; at times of resolution and absorption it would necessarily be increased.

On surveying the whole field, therefore, and taking into account various possibilities, it will be seen that in gout an increased excretion of uric acid might be due (1) to increased formation, (2) to decreased destruction, or (3) to the solution and washing out of gouty deposits; while a decreased excretion might be due either (1) to the deposition of mononatrium urate in the tissues, or (2) to a retention of uric acid in the blood or tissues owing to impairment of function of the excretory organs, the kidneys. When it is remembered that not one only of these factors but several of them together may be concerned in a given case, the complexity of the situation becomes obvious. No one ought to expect, in view of these considerations, that uric-acid excretion in gout will show any typical behavior, nor would any one, it would seem, be willing to draw any very far-reaching conclusions as to the pathogenesis of gout solely from a study of the amounts of uric acid excreted, and yet we find in the literature numerous instances of attempts at deduction from such values!

Thus forewarned, we may safely give ourselves over to an examination of the results of researches which have dealt with the excretion of uric acid in gout. Most of them deal with excretion in the urine alone, the feces being unheeded, and none but the most recent have made any pretense to that completeness and rigor which we are coming to demand shall characterize serious studies in metabolism.

Garrod made the first determinations; he declared that a smaller amount of uric acid than normal is contained in the urine of chronic gout and also in that of acute gout in the intervals between attacks. Others, working on the subject between 1850 and 1880, confirmed Garrod's findings for chronic gout, and assumed that the diminished excretion is due to retention; the control experimenters, however, could not support Garrod's ideas regarding acute gout for, though excretion

1. Klemperer, G.: Lösung und Zerstörung der Harnsäure im Blute Gesunder und Gichtkranker; ein Beitrag zur Bewertung der Gichtmittel. Therapie der Gegenwart, 1901, 344.

in the intervals between attacks appeared occasionally to be diminished, examinations extended over a long period, though they showed considerable variations, yielded, on the average, normal values.

In 1889, Pfeiffer urged the necessity of establishing the physiologic limits of variability of uric-acid excretion; he himself attempted to do this, and concluded that the amount excreted in normal individuals per 100 kilograms of body weight is constant. Later, in 1892, he emphasized the importance of the relation of excretion of uric acid to that of urea and stated as his belief that when the proportion is greater than one of the former to thirty of the latter, an abnormally high uric-acid excretion is going on. All these calculations of Pfeiffer lost their value, however, when it was shown that uric-acid excretion stands in no definite relation either to body weight or to the excretion of urea. We have seen that urea excretion is related to albumin metabolism, while uric-acid excretion is independent thereof, being chiefly a product of the decomposition of nucleins.

(To be continued.)

THE BABINSKI PHENOMENON AND OPPENHEIM'S SIGN.

Neurologists have been active of late in seeking for new varieties of reflexes and in endeavoring to interpret clinically alterations which occur in them. Among the more interesting of the phenomena described are the Babinski phenomenon and Oppenheim's sign.

The former of the two reflexes is elicited by stroking the plantar surface of the foot with a needle or with the handle of a percussion hammer. In normal adult individuals, the response consists in plantar flexion of the toes, but in new-born infants, and in patients in whom the pyramidal tract is degenerated, there is dorsal flexion, particularly of the great toe.

The reflex known as Oppenheim's sign was described in 1902. On stroking the medial surface of the leg at the posterior margin of the tibia or a little behind it with the blunt handle of a percussion hammer, the stroke passing from above downward from a point a hand's breadth below the knee joint to the malleolus, healthy individuals react, as a rule, by plantar flexion of the toes. Patients with spastic symptoms of the lower extremities, on the contrary, respond with a contraction or a tension of the tibialis anticus, extensor hallucis longus, extensor digitorum communis and sometimes also of the peroneal muscles. To apply the test successfully it is often necessary, as with the patellar reflexes, to resort to reinforcement.

The tendon reflexes in the lower extremities may differ in their behavior from these cutaneous reflexes when the pyramidal tract is diseased. It seems likely that the two kinds of reflexes follow different paths in the central nervous system. The tendon reflexes, as a rule, are increased when the pyramidal tract is interrupted (except in certain cases of total transverse lesion of the cord in which all cutaneous and tendon reflexes may be abolished). The view that certain fibers running in the pyramidal tract act by inhibiting reflexes or by regulating tonus is that usually put forward to explain this phenomenon.

The cutaneous reflexes, however, are not increased by disease of the pyramidal tract, but instead there is pathologic alteration in the character of these reflexes. Entirely different muscles or groups of muscles are called into play in the reflexes under abnormal conditions of the pyramidal tract than those active under normal conditions. The fact that the Babinski phenomenon and Oppenheim's sign can be elicited in a new-born babe before the pyramidal tract is developed or, at any rate, before it is medullated, makes it probable, as Pfeifer[1] has suggested, that the reflex arc follows a phylogenetically older path than the pyramidal tract—possibly a bulbospinal or cerebrospinal path or one from the basal ganglia. During the first three months of life stimulation of the plantar surface of the foot causes dorsal flexion of the great toe or foot; after the pyramidal tract is developed, these cutaneous reflexes travel over a new path by way of the cortex and a new group of muscles is called into contraction—plantar flexion of the toes and of the foot occurs. When the pyramidal tract becomes diseased in an adult and stimulation of the plantar surface of the foot or of the medial side of the leg calls forth dorsal flexion of the great toe or dorsal flexion of the foot, we may assume that the reflex current has returned to its primitive path, the normal one to the cortex and return utilized by the adult having been interrupted. Of course, in cases where both paths are destroyed, as, for example, in complete transverse lesion, the plantar reflexes are totally abolished.

While the above theory seems plausible, it must be borne in mind that the whole problem of the nature of the reflexes is at present in an unsatisfactory state. Knowledge concerning it is in a period of flux, and further studies must be awaited before definitive conclusions can be reached.

AMEBIC APPENDICITIS.

In Musgrave's important contribution to the treatment of amebic dysentery[1] are incorporated observations on amebic appendicitis which are worthy of special mention, particularly on account of their interest to surgeons. In 150 necropsies in cases of intestinal amebiasis (amebic dysentery) which he reports in Manila, 14 cases showed appendicular lesions. Six of these were due to an amebic infection, and in all cases this was a direct continuation of a process secondary to a similar one in the cecum.

Where the records are complete, all cases showing

1. Pfeifer, B.: Ueber die Bedeutung des Babinskischen Fusssohlenreflexes und des Oppenheimschen Unterschenkelreflexes als Kriterien der Pyramidenstrangerkrankung. Monats. f. Psychiat. u. Neurol., vol. xvi, 1904, p. 585.

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The differentiation of these three classes from each other during life is very difficult. In many instances it is even impossible to be sure that the appendix is involved at all. When, however, the lesions in the appendix are more important and the infection in the cecum is less intense, with care the diagnosis sometimes may be made.

On the other hand, the diagnosis in the tropics of an amebic process in or about the cecum, from an appendicitis due to other causes, offers, as a rule, no great difficulty. The history of dysentery or diarrhea and the finding of amebæ in the stools point to an amebic infection. The general symptoms also are usually less severe in an amebic process than in an ordinary appendicitis, the fever is slight or absent, nausea is less frequent, vomiting rare, muscle-spasm slight, and pain on deep pressure rarely acute. The tumor is generally soft and boggy, is rarely circumscribed, definite, and low in the iliac fossa, as in ordinary appendicitis.

The medical treatment of cases of amebic dysentery suggesting involvement of the appendix, is that applicable to appendicitis from other causes, plus high, large, quinin enemas. In all these cases a surgeon should be called in consultation. Operation is to be considered, but it is often inadvisable, since it necessitates the discontinuation of the quinin treatment.

Operation is contraindicated when the cecum alone is involved. It is rarely necessary when there is an aggravation of an existing chronic appendicitis from other causes, and it is unsatisfactory in the majority of cases of amebic appendicitis, for, although early operation is indicated here, the operator usually finds a gangrenous cecum and only succeeds in increasing his mortality rate. In 100 necropsies there were but two cases in which operation would probably have saved or prolonged life.

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To any one who has read the report of Dr. Reed, the answer of the commission will appear to be very weak, in fact, divested of the verbiage of argument and explanation, it will be found to be a confirmation of nearly all the important charges. Thus it incidentally admits that "modifications of the suggestions submitted by the medical staff were made from day to day"; that in refuting the charge that "Colonel Gorgas submitted an estimate for the establishment of emergency hospitals along the line; this estimate was reduced," the commission lets it crop out that "he (Gorgas) had suggested the establishment and equipment of twenty emergency hospitals," but that "it was decided that it would be better to establish only three"; the charge that Colonel Gorgas had asked for twenty inspectors and had been given only eight is "denied" by the statement that "the non-allowance of twenty sanitary inspectors to serve in the canal zone under the chief sanitary officer was one of the modifications of the suggestions of the chief sanitary officer already alluded to"; the charge that Colonel Gorgas had been denied mosquito screening asked for for Ancon hospital is "denied" by the statement that "the original proposition of the chief sanitary officer to construct screens entirely around the verandas and porches of Ancon Hospital buildings was modified"; the charge that the commission had established cheap medical competition is "denied" by quoting from a letter from Colonel Gorgas, in which he says: "I have discussed this with a committee appointed to represent the physicians (referring to the medical profession of Panama)"; the charge that the commission had established a cheap schedule of prices for medical and surgical services at Panama is "denied" by stating that "this is a quotation from page 166 of the minutes of the proceedings of the commission"; the charge that internes must stay a year to be entitled to free transportation home is "denied" in a statement in which occurs the rather embarrassing admission that "it is true that internes are expected to remain a year to entitle them to free return transportation."

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Naturally, the American medical profession in general is directly interested in the careers and personality of the men who have been selected to continue the work of one of the first and most influential of its teachers and leaders toward higher standards. The advancement of Dr. Thayer to a full professorship in clinical medicine is a well-merited promotion. Professor Thayer has risen from the ranks, so to speak, as the result of continued, patient service in various capacities in Professor Osler's clinic, beginning his apprenticeship in 1891. Under the influence of his illustrious teacher he early became a productive worker in the great field of clinical medicine. In his St. Louis address last fall Professor Thayer urged strongly that the humanitarian side of the education of our practitioners must not be neglected if medical men are to maintain to the fullest extent their influence for good, for the moral, mental and physical health of the community. This shows us one phase at least of the ideal toward which he is striving in his work as physician and teacher. We confidently predict that Professor Thayer will grow in strength and influence as one of the leading clinical teachers in this country.

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ance in medicine. Part of the time during his last visit to Europe was spent in acquiring greater familiarity with chemical technic. In his well-known address on "Medicine in the Universities,"[2] an address that received much notice, especially from those that are interested in the upbuilding of the medical departments of our large universities, he outlined clearly what he styles the real university medical school, giving special attention to the organization and equipment of the clinical branches. We mention this address in particular because it shows that he has given much thought to the development of general medicine in this country on the highest scientific planes.

From this survey we see that the change from anatomy to medicine is not at all abrupt and radical. On the contrary, we learn that a gifted man who has devoted his energies to the study of medicine in many of its aspects and especially of the fundamental principles and sciences, giving particular attention to neurology and chemistry, now takes up the teaching and investigation of general medicine as the main work of his life. In place of the early and exclusive specialization often practiced nowadays in medicine, Professor Barker has secured a broad and thorough general discipline and a universality of medical interests that bespeak the exceptional man.

He is a man of fine culture and breeding, courteous, considerate, of a pre-eminently winning personality. Gifted with a ready command of felicitous expression, he has come to be much sought for addresses on various occasions not always of a medical character. He always has been a popular and inspiring teacher of students, both as lecturer and as guide and counselor in advanced work. Finally, we wish to emphasize one distinguishing characteristic in all his work and conduct, and that is his unfailing loyalty to high ideals. We congratulate Professor Barker on the auspicious conditions that mark the beginning of a new phase in his career and we also congratulate the Johns Hopkins University because it is able to provide so well for its clinical teaching and investigation in internal medicine by the appointment of comparatively young men who have received the essential parts of their training in its various departments, and in a large degree under the direct influence of its first professor of medicine.

SUBSTITUTION BEFORE EXAMINING BOARDS.

A constant danger which examining boards have to face is the possibility of impersonation of one man by another, and to avoid this some boards have required candidates to present their photographs, supported by affidavits. A recent attempt to defraud in Maine is mentioned in our news columns this week. The question arises, how many times has a more shrewdly planned and more carefully executed fraud of this kind been undiscovered. Men who will cheat in this way will commit other dishonest acts, and thus we have added to the ranks of the medical profession men who are sure to bring dishonor and discredit to its name.

2. The University Record, 1902; American Medicine, 1902.

A QUEER SURGICAL OVERSIGHT.

Such surgical accidents as the leaving of a forceps or a sponge in the abdomen during laparotomy are by no means unknown and every careful surgeon is alert to avoid them. The most remarkable accidental inclusion, however, is reported from Paris, where a young woman has started legal proceedings on account of the finding of a pair of noseglasses in her abdomen. It appears that a laparotomy was performed on her in America and, her condition not being improved, a second one was performed in Germany. Still later the French physicians had the last innings and removed the eyeglasses from their peculiar position. The question is, who left them there? The natural presumption is that if they were left there at the first operation they should have been found at the second. There would seem to be a good chance for determining the question by testing the respective operators' eyes. While we comment on the matter, we do not vouch for the occurrence, as we have only the newspapers for our authority; no mention is made of it in our foreign exchanges.

THE DISSEMINATION OF STREPTOCOCCI.

During the past, one of the most unexplainable facts in surgery has been the occurrence of infection in surgical wounds, after all reasonable precautions had been taken to prevent it. The experiments of Flügge show the possibility of the dissemination of tuberculosis germs through droplets of sputum, and the experiments of Alice Hamilton and of Mendez de Leon, furnish an explanation of this possibility. It appears from Dr. Hamilton's[1] studies and experiments, published in this issue of THE JOURNAL, that streptococci are found in the majority of normal mouths, and that they are expelled to varying distances in the acts of coughing, breathing and even talking. The fact that no absolute rule as to number of germs or distance to which they are expelled can be laid down adds the element of uncertainty to this danger, and renders it all the more difficult to guard against. Mysterious epidemics of septic infection are thus explainable, as well as the aggravation of such disorders as scarlatina. The aggravation of the virulence of germs by successive cultivations on suitable media add decidedly to the probabilities of evil from this source. Aseptic surgery and medicine are constantly meeting new problems, and these studies throw light on much that has been obscure in the past. The value of the mouth guard for operating surgeons and the necessity of isolation of septic cases are also clearly demonstrated.

PRISON LABOR LEGISLATION.

THE JOURNAL has called attention repeatedly to the evils existing in our state prisons where contract labor has been abolished by law. There is no place where rational employment is more necessary to mental and

1. See page 1108, this issue.

bodily health than in state prisons, and a penitentiary sentence without it may be equivalent to the infliction of hopeless insanity as a punishment for any kind of felony. The law does not contemplate this, but that is often the practical result. It has been proposed in the state of Illinois, in order to meet the conditions brought about by the laws enacted at the instance of labor organizations, to employ the inmates of the penitentiary in certain public works, such as improvement of the highways, etc. This would involve the necessity of transporting the convicts to their places of labor and probably the establishment of convict camps at various points throughout the state. So far as meeting the sanitary requirements, provided the law is humanely carried out, the plan is unobjectionable. Outdoor work and outdoor life for even a portion of the year would be a great safeguard against the mental and physical deterioration that idle prison life involves. There are objections, however; one is the expense, others relate to matters of discipline and safety and still others are sentimental to a certain extent. All of these will have to be carefully considered and the last perhaps not the least.

CHEMICAL PATHOLOGY OF GENERAL PARALYSIS.

The subject of the chemical pathology of the nervous system is a recently opened field for investigation. In his lectures on biochemistry of muscle and nerve,[1] the first Herter lectures in the University and Bellevue Hospital College in New York, Professor Halliburton reviews the work of Mott and himself on the chemical pathology of general paralysis of the insane. The attention was directed especially to the cerebrospinal fluid which, in this disease, is greatly increased in quantity in order to fill the place once occupied by the shrinking brain substance. It was found that the fluid from general paralytics contains an excess above the normal of proteid material (nucleoproteid) and, furthermore, that cholin is present not only in the cerebrospinal fluid but in the blood of these patients, which is not a normal occurrence. Now when nucleoproteid is injected intravascularly in certain animals it may produce thrombosis, and Halliburton suggests that an increased coagulability of the blood in the cerebral vessels, caused by nucleoproteid, may be a factor in producing circulatory cerebral disturbances and, consequent on them, the acute apoplectiform and epileptoid seizures characteristic of general paralysis. Cholin, which is directly traceable to, and indicative of, disintegration of brain tissue, is not markedly toxic, yet there is reason to believe that continual liberation of cholin in small doses may cause feeble circulation due to cardiac weakness—a characteristic concomitant of the latter stages of the disease—because cholin depresses the heart. In general paralytics prolonged convulsions are followed by a distinct fall of the blood pressure and, inasmuch as such convulsions are associated with the breaking down of nervous tissue, it is not at all far-fetched to attribute the fall of pressure to cholin. These observations and the more or less tentative deductions from them throw some light on the complex and hitherto almost wholly unexplained phenomena of general paralysis. We see that the work of Mott and Halliburton so far indicates that some of the symptoms of the disease are due to autointoxication with the products of disintegrating cerebral tissue. The main etiologic problem of the disease remains as enigmatic as before and the first cause that directly induces this breakdown of nerve tissue is still unascertained.

1. "Ten Lectures on Biochemistry of Muscle and Nerve," by W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. With illustrations. Cloth. Pp. 160. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education of the American Medical Association will hold its next meeting in Chicago April 20. This will be an important meeting for the reason that to it have been invited representatives of the licensing and examining boards of the various states and territories, as well as representatives of the college associations. One of the objects of the meeting is that of securing the views of those connected with the licensing boards. Naturally, such views will be of great importance to the members of the council and will aid them in formulating plans. The attendance at the meeting promises to be a large one. About half the states have already appointed official delegates, and several more have signified their willingness to cooperate. The earnestness with which the spirit of the work has been received by all the boards of examiners promises much for the future. The subjects which will be brought before this conference are of interest to licensing bodies, to medical colleges, to the medical profession, to those interested in reciprocity, and to all interested in, and concerned with, medical education. Dr. Arthur D. Bevan will present a report considering the present status of the laws of the various states and territories with reference to licensure; Dr. Victor C. Vaughan and Dr. J. A. Witherspoon will present the subject of preliminary education, and Dr. W. T. Councilman and Dr. Charles H. Frazier will report on the subject of the curriculum of medical colleges. It is hoped that this conference will result in a better understanding of conditions as they exist, and in bringing about more uniformity in all matters pertaining to medical education, reciprocity, and the enforcement of medical laws.

Medical News

ILLINOIS.

Facilities for State Health Board.—The appropriations of the State Board of Health have been materially increased by the present general assembly. Funds for a state laboratory and a registrar of vital statistics have been granted.

Appropriations for Asylums.—The legislature has appropriated $380,600 for the maintenance of the Illinois Western Hospital for the Insane, Watertown, for the next biennium. ——The appropriation for the Illinois Eastern Hospital for the Insane, Kankakee, was cut to $154,000.

Fire at State Hospital.—A fire at the Illinois Southern Hospital for the Insane, Anna, damaged the power-house to the extent of $5,000. No casualties occurred, but the patients, as a matter of precaution, were taken from their rooms and marshalled in halls in case it proved necessary to remove them from the building.

Legislative Status.—Seven osteopathic bills have been introduced in the general assembly during the present session. One of these is dead. Three (House 228, 229 and 274) are still in the judiciary committee of the house. Two (Senate 169 and 292) are on the third reading in the senate. One (Senate 311) is in the judiciary committee of the senate.——Two optometry bills have also been introduced. Both (Senate 237 and House 432) are in the judiciary committee of the house. These bills are being opposed by the State Board of Health, which questions their constitutionality, and the secretary has requested an opinion on this point from the attorney general.——Senate Bill No. 271 for the regulation of scientific experiments on human beings and animals is on first reading in the house.——House Bill No. 141, requiring school teachers to present certificates that they are not affected with any communicable disease, is on second reading.——House Bill No. 414, providing for the sale and distribution of antitoxin under the direction of the State Board of Health, is on second reading.——House Bill No. 495, providing that physicians who attend court as expert witnesses shall be paid the sum of $10 per day, is in the committee on fees and salaries.——The status of other bills affecting the interests of the medical profession is as stated in previous issues of THE JOURNAL.

Chicago.

Smallpox Decreasing.—During the week ended April 1, 16 new cases of smallpox were reported. On March 31 there were 85 patients in the Isolation Hospital, but on April 4 there were only 79. Only one death from the disease occurred.

March Mortality.—During March the mortality was 2,592, or an annual rate of 15.28 per 1,000. Pneumonia caused 490 deaths; consumption, 316; heart diseases, 188; nephritis, 173; violence, 159; diphtheria, 30; influenza, 23; measles, 32; smallpox, 16, and scarlet fever, 7.

Deaths of the Week.—The mortality for the week ended April 1 was 577, equivalent to an annual mortality of 15.11 per 1,000, a slightly lower rate than that for the previous week or for the corresponding week of last year. Pneumonia still led important death causes with 106; consumption caused 69 deaths; nephritis, 56; heart diseases, 43; violence, 36; cancer, 21; whooping cough, 12, and measles, 11.

Sues State Board.—Dr. Frederick L. Orsinger, formerly of La Salle, who claims to be a graduate of Zurich, Switzerland, of 1870, and has a diploma from an eclectic institution of April, 1904, has asked that the State Board of Health be compelled by a writ of mandamus to issue to him a certificate to practice medicine in the state. On March 24 the appellant was fined $200 for violation of the medical practice act.

Health Conditions Relatively Satisfactory.—Public health conditions at the end of the week and of the month continue fairly satisfactory. There is some decrease of the hospital population, especially of typhoid fever and pneumonia. The worst of the pneumonia season is over and consumption will soon again resume its lead as cause of the greatest number of deaths. Between Nov. 1, 1904, and April 1, 1905—154 days—there were 2,263 deaths reported from pneumonia and 1,384 from consumption. During the corresponding period of 1903-04 there were 2,666, or 403 more, pneumonia deaths, and 1,295, or 89 fewer, deaths from consumption.

IOWA.

Left Estate to Hospital.—Daniel Colbert, Iowa City, who turned over all his property to Mercy Hospital about two years ago, with the provision that he should be cared for at the institution, died March 22.

Healer Convicted.—H. C. Weigert, a "magnetic healer" of Waterloo, has been convicted of practicing medicine without a license. The court instructed the jury that if it found that the accused had professed to heal disease, it could find him guilty of practicing medicine without a license, and he was found guilty on that point.

Personal.—Dr. Lee Wallace Dean, Iowa City, has been commissioned by the State Board of Control to attend prisoners at the two state penitentiaries who need the care of an ophthalmologist.——Dr. A. C. Moerke has been appointed a member of the State Board of Health and Medical Examiners, vice Dr. John A. McKlveen, Chariton.

Ottumwa Hospital Dedicated.—The new hospital at Ottumwa, erected at a cost of $27,250, which represents contributions from 2,324 individuals, was formally dedicated March 24. The medical staff is as follows: Attending—Drs. Lewis J. Baker, George C. Pope, J. B. Wilson, M. W. Pascoe, Murdoch Bannister, Horace W. Roberts, John F. Herrick, F. W. Bowles, Charles E. Huband, Smith A. Spilman, William B. La Force, Edward A. Sheafe and David C. Brockman; consulting—Drs. Lewis J. Baker, Benjamin W. Searle, David C. Brockman, D. A. La Force, Salisbury E. O'Neill and Alfred O. Williams; specialists—Drs. William Hansell, Burdette D. La Force and Austin J. Mummert; advisory board—Drs. David C. Brockman and Alfred O. Williams, and county physician, Dr. F. W. Bowles.

KANSAS.

New Hospital Opened.—St. Francis' Hospital, Atchison, has been opened for the reception of patients. It is undenominational and unsectarian and is open to all reputable physicians.

Adjudged Insane.—Dr. L. L. Sowders, West Mineral, who has been subject to epilepsy for several years, due to a blow on the head with a hatchet, has been adjudged insane and committed to the State Hospital at Parsons.

Communicable Diseases.—During February 689 cases of smallpox were reported, with 4 deaths; 132 cases of scarlet fever, with 4 deaths; 44 cases of diphtheria, with 5 deaths, and 44 cases of typhoid fever, with 12 deaths.

State University Medical School.—By action of the legislature the University of Kansas is enabled to take advantage of a gift of $70,000 by Dr. Simeon Bell, Rosedale, to be used in the erection and equipment of a hospital in connection with the school of medicine of the university. It hopes to have in full operation next fall a full four years' course in medicine. The clinical work will be done at the new hospital at Rosedale.

MAINE.

Adjudged Insane.—Dr. William King, Brunswick, has been adjudged insane and committed to the Maine Insane Hospital, Augusta.

Hospital Items.—Bar Harbor Medical and Surgical Hospital has been given an appropriation of $2,000 for 1905, and $2,000 for 1906.——Knox County General Hospital, Rockland, is now open to all "graduate physicians and surgeons in good standing in Knox County" for treatment of patients.——The legislature has made a biennial appropriation of $120,000 for the Eastern Main State Hospital, Bangor.——College Hospital, Saco, has been closed, as it did not prove a financial success.——The secretary of war has transferred to the state for the use of the Maine Insane Hospital, Augusta, the United States arsenal property in Augusta, valued at $200,000.

Alleged Substitutor Arrested.—News has been received of the arrest in Portland, Maine, of Dr. Haughton Baxley of Baltimore, on the charge of substituting at an examination before the Maine Board of Registration for Austin Francis O'Malley, a graduate of the Baltimore University School of Medicine. O'Malley was also arrested on the charge of being implicated in a conspiracy against the public health laws of the state. The dispatch states that Baxley made a full confession. The paper which Baxley put in contained his Baltimore address, and this led to detection, since O'Malley had given a Philadelphia address. Baxley is said to be addicted to cocain and morphin, and about three years ago was arrested and fined for attempting to shoot a man at Baltimore. He has for some time held the lectureship of histology and pathology at the Baltimore University, but on receipt of this news he was promptly expelled from the faculty.

MARYLAND.

Personal.—Dr. J. Clement Clark, superintendent of Springfield Asylum for the Insane, sailed for England March 29.

Must Report Tuberculosis.—The new law requires that all physicians report to the State Board of Health all cases of tuberculosis within seven days on special blanks provided by the board. Such reports are kept secret. The board has provided 30,000 sputum cups, 2,500 metal cup holders and a lot of chemical supplies, in order to deal with the disease.

Faculty Meeting.—The Medical and Chirurgical Faculty of Maryland will hold its annual session in Baltimore, April 25, 26 and 27. The opening session will be devoted to the presidential address by Dr. E. N. Brush. Dr. Clarence J. Blake will open the Wednesday evening session with an address on "Co-operation in Medical Teaching," followed by three short papers illustrating the benefits to the community of medical science, Dr. W. H. Welch speaking for preventive medicine, Dr. I. E. Atkinson for practical therapeutics and Dr. Robert W. Johnson for surgery. The annual oration will be delivered

on Thursday at 4:30 p. m. in McCoy Hall by Dr. William Osler, and will be followed by the annual dinner. Members of the faculty will be entertained by the president, Wednesday afternoon, at the Sheppard and Enoch Pratt Hospital, Towson, when the new hydropathic establishment will be formally opened.

Baltimore.

Last Week's Statistics.—There were reported for the week ended April 1, 196 deaths, 164 births, and 160 cases of measles.

New Hospital and Dispensary.—Announcement is made that Drs. William S. Gardner, Albertus Cotton, Lee Cohen, J. Williams Lord, Edward Bernstein and Arthur G. Barrett are about to found a hospital and dispensary in the northwestern part of the city.

Personal.—Dr. Percy M. Dawson was knocked down on the street by a negro rough, March 26.——Dr. Harvey W. Cushing was elected vice-president of the Yale Alumni Association of Maryland, March 31.——Dr. Albert K. Hadel is critically ill with paralysis and pneumonia.

Fund for Fighting Mosquitoes.—Dr. Howard A. Kelly is raising a fund for the purpose of fighting the mosquitoes here this summer. About $300 is needed. The services of Mr. T. H. Coffin, an expert on mosquitoes, have been secured and he will make a thorough investigation of local conditions.

MASSACHUSETTS.

Personal.—Dr. Edward S. Wood, professor of chemistry at Harvard University Medical School, is convalescing from an exploratory laparotomy done at the Corey Hill Hospital, Brookline.

Against Leprosarium.—The committee on public institutions of the state legislature has reported against the passage of a bill providing for the establishment of a hospital for persons afflicted with leprosy or other contagious disease.

Moth a Nuisance.—The boards of health of Boston, Salem and Waltham have declared the brown-tail moth a public nuisance and a menace to the public health. This means that citizens, when notified of its presence on their property, must abate the nuisance or be liable to a fine.

Public Institutions Report.—For the year ended Jan. 31, 1905, 960 cases were examined medically by the Boston Public Institutions Department. Of these 958 were committed, 552 to insane hospitals, 314 to the Observation Hospital on Deer Island, and the others to the state epileptic and dipsomaniac hospitals.

Meningitis Alarms Public.—Considerable anxiety among the general public, fostered if not produced by the sensational daily press, has been aroused in and about Boston because of the unusually large number of cases of cerebrospinal meningitis reported since January 1. Many towns and cities have made the disease returnable as one of the contagious diseases. Cambridge has ordered sealed caskets and Somerville requires private funerals. In the latter city one school was temporarily closed for fumigation. The disease is, however, very far from epidemic. Up to the end of March there were 87 deaths from the disease reported in the state, as against 55 in 1904 and 65 in 1903 for the same period.

MICHIGAN.

Personal.—Dr. Ralph P. Beebe, health officer of Kalamazoo, was thrown out of a sleigh into a barbed wire fence and sustained severe scalp wounds.——Dr. Mary Elizabeth Morse, Baltimore, has been appointed to the house staff of the Eastern Michigan Asylum, Pontiac.——Dr. Benjamin P. Brodie has started on a trip around the world.

Takes Cushny's Place.—Dr. Charles W. Edmunds, Ann Arbor, who for three years has been instructor in pharmacology in the University of Michigan, has been placed in charge of the department of materia medica and therapeutics for the balance of this year, temporarily assuming the position held by Professor Cushny previous to his recent departure for England.

Antituberculosis Society Organized.—At the close of a lecture by Dr. S. A. Knopf of New York City on "How to Combat the Great White Plague, or Tuberculosis," March 21, the Detroit Society for the Prevention and Cure of Tuberculosis was organized, with Mr. S. T. Douglass, temporary chairman, and Dr. Edwin S. Sherrill, temporary secretary and treasurer.

Law Not Retroactive.—An important ruling of state interest was handed down by Judge Coolidge March 29, at St. Joseph, deciding that the law of 1903, aimed at quack and freak doctors, did not apply to persons practicing medicine without a license prior to that time. This was decided in the case of the People vs. John Fabry, charged with practicing medicine without a license.

MINNESOTA.

Accidents.—Dr. James A. Quinn, St. Paul, lost the index finger of his right hand from the accidental discharge of a revolver.——Dr. O. Wellington Archibald, St. Paul, has been suffering severely from the effects of chrysophanic acid poisoning of the eye.

Said to Have Exposed Smallpox Patient.—Drs. Henry E. Wunder, Tower, and James Fowler, Soudan, have been found guilty of exposing to the public a smallpox patient whom they sent to Duluth. The defense was that the defendants did not recognize the disease.

Smallpox at Argyle.—Argyle is said to attribute the rapid spread of smallpox in the last two weeks to the fact that a local practitioner did not understand the use of the capillary tubes of vaccine virus, and attempted to force the virus through the needle, which he supposed was hollow.

Entomologist Wants Maggots from Human Subjects.—State Entomologist F. L. Washburn, St. Anthony Park, will be grateful to any one who will send him live specimens of dipterous parasites, "maggots" or "bots" found in human subjects. They may be packed in moist cotton or in earth. His desire is to rear these parasites and establish their identity for the furthering of knowledge along this line.

NEW YORK.

Coroner's Bill Reported.—The Elsberg coroner's bill has been favorably reported from the senate cities committee without amendment and is now in shape to be passed.

Do Not Report.—Health Commissioner Greene complains that Buffalo physicians are lax in reporting some of the infectious diseases, such as mumps, and that many do not report births.

Illegal Practitioner Convicted.—Louisa Busch was arrested on a charge of practicing without a license. She pleaded guilty in police court, was convicted, but sentence was suspended.

Disease from X-Ray.—With the purpose of overcoming a diseased condition of the left hand caused by the continuous use of the *x*-ray, Dr. Clarence A. Greenleaf, Rochester, has discontinued practice and will go to Cayuga Lake to spend the summer.

Bills Signed by the Governor.—Senator Carpenter's bill authorizing White Plains to appropriate $1,500 a year for the White Plains Hospital Association, and a bill prohibiting the use of methyl or wood alcohol for adulterative purposes have been signed by the governor.

Appropriation Assured.—An appropriation of $18,000 is assured for the State Cancer Laboratory, situated at Buffalo. This is $3,000 more than was appropriated last year. Experiments similar to those already reported for inoculation of the disease and formation of a serum are to be made on chimpanzees.

New York City.

Out on Bail.—Dr. Edward E. Conrad, who was convicted of attempted abortion and has been in the Tombs pending appeal, has been released on $16,000 bail.

To Take Census.—Commissioner Darlington has appointed 150 health inspectors from the civil service eligible list to make an enumeration of the congested districts of the city and work will be begun immediately.

Measles Epidemic Due.—The Health Department has asked for $4,500,000, and the Board of Estimate has granted $1,000,000 as a temporary arrangement. The health board announces that an epidemic of measles is due, that they expect to have at least 20,000 cases and that they need larger facilities.

Contagious Diseases.—There were reported to the Sanitary Bureau for the week ended March 25, 576 cases of tuberculosis, with 198 deaths; 379 cases of measles, with 9 deaths; 294 cases of diphtheria, with 38 deaths; 258 cases of scarlet fever, with 13 deaths; 167 cases of cerebrospinal meningitis, with 85 deaths, and 180 cases of varicella.

New Hospital Committee.—In accordance with action taken at the conference on hospital needs and hospital finances, held on March 23, the president of the New York Association for Improving the Condition of the Poor has appointed a committee of twelve to consider propositions looking to the welfare

of the city's hospitals and has called a meeting for organization.

The Meningitis Epidemic.—The week ended March 30 shows an increase of 600 per cent. in the number of deaths from this cause over the corresponding week of last year. Since March 25 the number of deaths has averaged 22 a day. There are 19 cases in the hospitals of the Bronx, and the superintendent of one of the hospitals said they were admitting on an average one case daily. Six victims are reported in one family.

Is St. Vitus' Dance Increasing?—A physician in charge of nervous diseases in children in the Presbyterian Hospital states that this disease is more prevalent than formerly. This is attributed to the fact that children are made nervous by overstudy. This announcement follows closely on that of Physical Director Gulick, who complains that children of delicate constitution are given curvature of the spine by carrying too many books to and from school. These statements have been presented to the Board of Education and a committee of physicians will be appointed to investigate their truth.

NORTH CAROLINA.

Examiners Meet in May.—The Board of Medical Examiners of the State of North Carolina will meet in Greensboro, May 17 to 23.

Osteopathic Bill Fails.—The osteopathic bill failed to pass the legislature, thanks to the organization of the profession of the state on the plan suggested by the American Medical Association.

Deaths for January.—The total number of deaths reported in January was 235, equivalent to an annual death rate of 18.8 per 1,000. Consumption caused 39 deaths; pneumonia, 37, and heart diseases, 21.

Medical Staff of National Guard.—The following appointments to the medical department of the national guard are announced: Surgeon-general, Col. Baxter R. Hunter, King's Mountain; deputy surgeon-general, Lieut.-Col. Charles S. Jordan, Asheville; majors and surgeons, Drs. Andrew L. Pendleton, Elizabeth City; Eugene H. Brooks, Reidsville; Frank H. Holmes, Clinton, and Eugene B. Glenn, Asheville; captains and assistant surgeons, Drs. A. R. Winston, Franklinton; Parks McC. King, Charlotte, and W. T. Parrott, Kinston; and first lieutenants and assistant surgeons, Drs. E. Crawford Boyle, Mount Holly, and B. J. Witherspoon, Jr., Charlotte.

PENNSYLVANIA.

Smallpox at Mount Union.—Many cases of smallpox have appeared at Mount Union during the past week.

Idiocy Bill Vetoed.—The governor has vetoed the bill for the prevention of idiocy which was mentioned in THE JOURNAL April 1. He said if idiocy could be prevented by the act of assembly, this course would surely have been adopted and such an act passed and approved by the state, and, furthermore, that such laws would be enacted in all civilized countries. He said the title of the bill is imperfect, because it does not clearly set forth its purpose. Of the operation, he said the nature of the operation should be described instead of leaving it to the judgment of the board and allowing them to decide as to the safest and most effective method of treatment.

Later Tuberculosis Legislation.—The two bills to establish two state sanatoria for indigent cases of incipient tuberculosis and appropriating $400,000 for this purpose, have been amalgamated into one, and instead of putting the two institutions into the hands of the forestry commissioner exclusively, the new bill calls for the appointment of a commission of three, consisting of two physicians and the forestry commissioner, who are to serve later as trustees for the institutions. One sanatorium is to be located near the south center of the state and near the state sanatory camp near Mont Alto, which was founded in 1903, and the other in the western part of the state, both being built on forestry reserves, thus permitting the entire appropriation to be used for buildings, equipment and maintenance. The appropriation for the institutions has been reduced from $400,000 to $300,000. The bill has passed both legislative bodies and now awaits the governor's signature. It is undoubtedly the indirect outcome of agitation begun years ago by the Pennsylvania Society for the Prevention of Tuberculosis, and regularly and intermittently renewed through the public press, public meetings and direct appeals to the legislature. The recent advocacy by the Philadelphia County Medical Society of a $500,000 expenditure by the state for the care of the tuberculous poor has also been largely responsible for this adequate approximation to a beginning at least in the public support of indigent consumptives.

Philadelphia.

Bequest.—By the will of Meyer Guggenheim of New York $20,000 is devised to the Jewish Hospital Association of Philadelphia.

Personal.—Dr. Joseph Leidy, who has been spending several weeks in Europe, returned home March 29.——Dr. Henry Leffman addressed the Engineers' Club, April 1, on "Sanitation in Office Buildings."

Examinations for Internes.—A competitive examination for six resident internes for St. Joseph's Hospital will be held at the hospital May 1, at 6 p. m.——Examination for two resident physicians at the Reading Hospital will be held in the Hotel Walton, Philadelphia, April 11. Applications should be made to Dr. Israel Cleaver, Reading, Pa.——Examination for resident physician for the Phoenixville Hospital will be held at the hospital, April 22.——The annual examination for resident physicians to the Episcopal Hospital will be held April 13 and 14. The term of service is 18 months. Applications should be made to Ewing L. Miller, Twelfth and Walnut streets.

Health Report.—The total deaths for the week ended April 1 numbered 545, an increase of 14 over last week, and a decrease of 53 from the corresponding week of last year. Typhoid fever still prevails, but the new cases, 231, show a decrease of 75 cases compared with those of last week; the deaths resulting from the disease were 32, or 15 more than last week. From March 4 to April 1 1,054 cases of typhoid existed in the city, and 91 deaths occurred. The principal causes of death were as follows: Typhoid fever, 32; tuberculosis, 58; cancer, 17; apoplexy, 36; heart disease, 49; acute bronchitis, 12; pleuropneumonia, 49; bronchopneumonia, 21; Bright's disease, 46; enteritis, 27, and cerebrospinal meningitis, 4. Measles and chicken-pox are prevalent. There were 50 new cases of each disease reported, and 3 new cases of cerebrospinal meningitis were also reported. In all there were 327 cases of contagious disease reported, with 37 deaths, as compared with 369 cases and 27 deaths for the preceding week.

SOUTH DAKOTA.

Hospital Addition Completed.—The addition to St. Luke's Hospital, Aberdeen, which practically doubles the capacity of the institution, has been completed and equipped, at a cost of $20,000.

Unlicensed Practitioners Fined.—Drs. W. C. Hamilton, Iona, and Antranig T. Ishkanion, Oacoma, have each been found guilty of practicing medicine without a license, and a fine of $50 was imposed in each case.

Battle Mountain Sanitarium.—The Army Sanitarium at Hot Springs will be ready for occupancy January 1 next. An additional appropriation of $32,500 has been secured for officers' quarters and a conservatory. The establishment will accommodate 450 patients.

TENNESSEE.

Commencement.—The annual graduating exercises of the Department of Medicine of the University of Nashville were held March 31.

Surgical Amphitheater Burns.—The amphitheater for surgical clinics at the Medical Department of the University of Tennessee, Nashville, erected in 1899, was destroyed by fire March 13, and the lecture room was damaged. The fire loss is estimated at $15,000.

Personal.—Dr. William A. Applegate, Chattanooga, has been appointed chief surgeon of the Southern Railroad Company.——Dr. William G. Ewing has been appointed chairman of the Nashville Water Supply Commission.——Dr. Kirby S. Howlett, Franklin, was thrown from his buggy March 10 and bruised about the head.——Dr. J. Sinclair Dye has been reappointed city physician of Chattanooga.——Dr. James Foster Scott, Jr., has been reinstated as city physician of Knoxville.

Staff Changes.—The following changes in the staff of the Knoxville General Hospital are announced: Dr. William R. Lockett, pathology; Dr. Henry P. Coile, medicine, vice Dr. Charles P. McNabb; Dr. William R. Cochrane, surgery; Dr. Charles E. Lones, gynecology, vice Dr. Samuel M. Miller; Dr. Drake, surgery, vice Dr. Walter S. Nash; Dr. Howard A. Ijams, obstetrics, vice Dr. Samuel L. Jones; Dr. Claudius M.

Capps, eye, ear, nose and throat, vice Dr. Benjamin F. Young; Dr. Douglas Caulkins, children, vice Dr. Ernest R. Zemp, and Dr. Charles E. Ristine, pathology.

TEXAS.

Graduates Seventeen.—A class of 17 received diplomas at the commencement exercises of the College of Physicians and Surgeons, Dallas, March 23.

Physiomedical Bill Defeated.—The house bill creating a physiomedical examining board was practically killed by postponing its consideration until April 6.

Accident.—Dr. F. Early Young, San Antonio, while on his way to West Point, fell between two cars on a passenger train at Sandy Fork, breaking an arm and a clavicle.

Cornerstone Laid.—The cornerstone of the new building for the Medical Department of Southwestern University, Dallas, was laid by Bishop Hess with appropriate ceremonies, April 3. The building is expected to cost $50,000.

VERMONT.

Verdict for Mistaken Arrest.—Dr. Ashbel P. Grinnell, Burlington, dean of the Vermont Medical College, has just received a verdict awarding him $10,000 for false arrest and imprisonment, which occurred in New York City four years ago, when he was mistaken for some one else.

Did Not Report Disease.—Dr. Nicholas J. Delahanty, Rutland, was fined $10 and costs, amounting to $23.33, for violating the state law requiring physicians to report cases of communicable diseases. The defendant stated that he did not consider that membranous croup was diphtheria and filed an appeal.

VIRGINIA.

Hospital Wing Opened.—The new wing of the University of Virginia Hospital, Charlottesville, erected at a cost of $35,000, has been informally opened, in the presence of many alumni of the university medical department.

Personal.—Dr. William F. Creasy has been reappointed quarantine officer of Newport News.——Dr. John B. Fisher, Midlothian, has been designated as a life member of the board of visitors of the Medical College of Virginia, Richmond, vice Dr. Thomas P. Matthews, Manchester, deceased.——Dr. Robert M. Wiley, Salem, has been made president of the Roanoke County Board of Health, vice Dr. Oscar Wiley, deceased.

Cocain Prescribers and Sellers in Trouble.—Drs. B. H. Sparks and Allen B. Montz, Charlottesville, who, it is alleged, have been giving indiscriminate prescriptions for cocain, have been notified that this practice should be discontinued.——Dr. A. G. Skelton, Bloodfield, has been fined $8.50 for selling cocain to negroes and has been committed to jail. He was convicted by a negro justice of the peace and intimates that the Circuit Court will investigate the matter.——S. J. Simmons, a druggist of Rivermont, was fined $100 in each of three charges of selling cocain. Jim Faulkner, convicted of buying cocain from Simmons and selling it to boys, was fined $25 and advised to leave the state for a year on pain of imprisonment.

WISCONSIN.

Money for Hospital.—Gifts of cash amounting to nearly a thousand dollars were received at the annual donation day of the Mount Sinai Hospital, Milwaukee.

Personal.—Dr. Gilbert E. Seaman, Milwaukee, has been commissioned major and surgeon in the Wisconsin National Guard, and has been assigned to the First Infantry, vice Dr. Joseph B. Whiting, Jr., Janesville, deceased.

Physicians Pay for Mistake.—Drs. Thomas W. Nuzum and Arick Sutherland, Brodhead, against whom Paul Parkhurst brought suit for $10,000, contending that the defendants had operated on the wrong foot, have settled the case for $5,000.

Smallpox Alarms.—Kenosha is alarmed because Bristol, 12 miles west, has 9 cases of smallpox.——Smallpox has broken out among the Chippewa Indians on their reservation near Ashland.——Two students of Milwaukee Medical College have been removed to the Isolation Hospital.

GENERAL.

Dinner to Dr. Osler.—As stated in THE JOURNAL, March 25, page 969, a farewell dinner will be given to Dr. William Osler at the Waldorf-Astoria, New York City, at 7:30 p. m., May 2. Invitations to subscribe may be obtained of the chairman, Dr. James Tyson, 1506 Spruce Street, Philadelphia, until April 20.

Anniversary of Frederick Stearns & Co.—The current issue of the *New Idea* commemorates the fiftieth anniversary of the founding of the house of Frederick Stearns & Co., devoting considerable space to the history of the institution, to the extent and character of the business and to the personnel of the present executive staff. The article relates that Frederick Stearns, the founder of the firm—who, at the age of 14, had begun his career in the drug business as a drug store apprentice—came to Detroit in 1885, started a drug store and began to manufacture pharmaceuticals for the trade in a back room twelve feet square. The numerous illustrations include pictures of various members of the staff and of the various buildings successively occupied by the firm from the earliest date up to the present immense plant. We congratulate Mr. Stearns and the firm on this semi-centennial.

New Professors of Medicine at Johns Hopkins.—Professor Osler's resignation, which goes into effect next month, has led to the appointments just announced of Lewellys Franklin Barker of Chicago as professor of medicine and of William Sydney Thayer of Baltimore as professor of clinical medicine in the Johns Hopkins University and Hospital. Like his former teacher and predecessor, Professor Barker is a Canadian by birth. He was born in Norwich, Ontario, Canada, Sept. 16, 1867. The principal events in his medical career may be epitomized as follows: M.B., University of Toronto, 1890; licentiate College of Physicians and Surgeons of Ontario, 1890; house officer, Toronto General Hospital, 1890-1; assistant physician, Johns Hopkins Hospital, 1891-2; fellow in pathology, Johns Hopkins University, 1892-4; associate in anatomy, ibid., 1894-7; student, University of Leipzig, 1895; assistant resident pathologist, Johns Hopkins Hospital, 1894-9; associate professor of anatomy, Johns Hopkins University, 1897-9; Johns Hopkins medical commissioner to the Philippine Islands, 1899; associate professor of pathology, Johns Hopkins University, 1899-1900; resident pathologist, Johns Hopkins Hospital, 1899-1900; professor and head of the department of anatomy in Rush Medical College and the University of Chicago, 1900-05. The most noteworthy work accomplished during the Baltimore apprenticeship is embodied in his work on "The Nervous System and Its Constituent Neurones" (D. Appleton & Co.), in which are explained and discussed, on the basis of personal study and with the clearness that comes only from perfect mastery of the complex subject, the newer knowledge and conceptions of the nervous system. The book has been an important factor in popularizing this knowledge. Professor Barker's interest in neurology included from the first all aspects of the subject and several articles on clinical and pathologic problems in neurology have appeared from him. Among other contributions from this period are studies of the pathologic changes in malaria, iron in eosinophile cells, pyocyaneus infections, etc. In the fall of 1903 Professor Barker married Miss Lillian Halsey of Baltimore. The following year was spent in travel and study in Europe; several months were passed in the clinic of Fr. Müller of Munich and in the chemical laboratory of Emil Fischer in Berlin. Our readers have had full opportunity to become familiar with Professor Barker's European observations and reflections through the interesting letters he sent to THE JOURNAL. Last fall a preliminary step was taken to cast his lot definitely with internal medicine when he accepted an appointment as professor of medicine in Rush Medical College and began to give clinical instruction in nervous diseases. And now, after this brief career as an actual clinical teacher in Chicago, comes the call to return to Baltimore.——William Sydney Thayer, who has been appointed professor of clinical medicine, was born in Milton, Mass., June 23, 1864. He received his A.B. at Harvard in 1885, and graduated from the medical department of the same university in 1889. He served as resident physician in the Johns Hopkins Hospital from 1891 to 1898; was appointed associate in medicine in the Johns Hopkins University in 1895, and advanced to associate professor about 1897, and has for some time been chief of the medical clinic in the hospital. Professor Thayer has made several substantial contributions to medical literature. His best known work deals with various phases of malaria, and Thayer and Hewetson's monograph on malaria is the standard English work on this disease. His interest and active work in malaria and blood diseases have stimulated others to undertake successfully research in this field. Following the example of his illustrious chief, Professor Thayer has busied himself with medical biography, especially of the French teachers and leaders in internal medicine who lived in

the early part of the last century. All his work is marked by great thoroughness, ability and genuine scholarship. On resigning his position as resident physician Professor Thayer became married and took up private practice in Baltimore in addition to his duties as teacher of medicine. He has been a frequent attendant on the meetings of the American Medical Association and in 1903 he was chairman of the Section on Practice of Medicine. He delivered one of the addresses on medicine at the International Congress of Arts and Science in St. Louis last fall.

CANADA.

Joint Meeting of Medical Societies.—There will be held in Winnipeg, Man., April 7, a joint meeting of the Southern Medical Association of Manitoba and the Winnipeg Medical Association.

Deaths in Montreal.—In 1900 the deaths in Montreal numbered 7,351; in 1901, 6,915; in 1902, 7,954; in 1903, 6,895. The deaths from tuberculosis in 1900 amounted to 692; in 1901, 647; in 1902, 644; in 1903, 633. The statistics for the week ending March 25 show 129 deaths in the city and 155 births.

Personal.—Dr. A. E. Vipond, Montreal, who has been in Europe for the past year and a half, has returned home.——Dr. J. F. W. Ross has returned to Toronto after spending three months in southern California, Texas, New Orleans and St. Augustine, Fla.——Dr. George R. McDonagh, professor of laryngology and rhinology in the University of Toronto, is returning from Italy after a two months' vacation.——Dr. A. P. Proctor, Kamloops, B. C., one of the members of the British Columbia Medical Council, has removed to Vancouver and will practice there.——Dr. Simon J. Tunstall, Vancouver, has been elected president of the British Columbia Graduates' Society of McGill University, and Dr. W. J. McGuigan, formerly mayor of that city, has been re-elected secretary.——Dr. John Stewart, Halifax, N. S., president of the Canadian Medical Association, which meets in that city in August, has been spending two weeks in Montreal and Toronto in the interests of the coming meeting.

FOREIGN.

South African Medical Congress.—The South African Medical Congress will be held at Pietermaritzburg, Natal, June 12-17, 1905, under the auspices of the Natal branch of the British Medical Association.

Cholera Congress at Moscow.—The latter part of March witnessed a large gathering of Russian physicians and hygienists at Moscow to discuss the epidemiology, pathology, treatment, prophylaxis, etc., of cholera.

Government Control of Drug Business in Japan.—It is stated in the *Public Health Reports* that a bill has been introduced in the Diet proposing legislation of a stringent character having for its object the more strict control of the drug business.

Emile Zola Home for Convalescent Nurses.—Zola's widow has presented her property at Médan to the *Assistance Publique*, which will fit it up and maintain it as a convalescent home for women nurses. Zola's study will be kept intact for sightseers.

Bill to Regulate Ads of Secret Medicines in Germany.—An appeal was recently presented in the German reichstag, indorsed by both the liberal parties, which petitioned the authorities to regulate the sale and advertisement of medicines whose composition is kept secret.

Wirtinger's Jubilee.—Dr. J. Wirtinger of Vienna—sometimes called the father of the clinical thermometer—celebrated on March 2 the fiftieth anniversary of his attaining his medical degree. He published in 1865 his first large work on the use of the thermometer in the clinic.

Floating Sanatorium.—The Hamburg-American Line has launched a twin-screw steamer of 8,600 tons, specially designed as a floating sanatorium. It starts on its first trip from Hamburg July 8, and will cruise around Scotland and Norway for twenty-six days.

Plague in Australia.—During February, according to the *Public Health Reports*, several cases of plague were found in and near Brisbane. Two of the patients were employed in a warehouse in removing matting and other wrappings from goods imported from Hongkong.

Plague in Chili.—In Pisagua, a seacoast city with a population of about 4,000, the outbreak of plague has assumed such proportions that the health authorities are incapable of dealing with the situation or even burying the dead. According to the *Public Health Reports*, the bodies in many cases are left in the places where death occurred.

The Father of Hydrotherapy.—Abroad this title is generally conferred on Prof. W. Winternitz of Vienna, whose seventieth birthday was celebrated March 1. He has been docent of hydrotherapy at Vienna for forty years, and founded his hydrotherapeutic establishment before that date. He has been publishing since 1890 a monthly, *Blätter f. klinische Hydrotherapie*, and is a frequent contributor to medical journals on hydrotherapy, dietetics and allied subjects.

From the Seat of War.—The *St. Petersburg. med. Wochft.* states that it is supposed that the flying column and hospital in charge of Zoege von Manteuffel has fallen into the hands of the Japanese, with a number of other physicians and hospital corps. The number of wounded "evacuated" from the hospitals around Mukden between February 15 and 28 is stated in the official report to have been 1,379 officers and 56,722 privates.

Spittoons in Public Places at Buenos Ayres.—The regulations at Buenos Ayres call for spittoons mounted on standards or fastened in the wall at a certain height from the floor, in all schools, colleges, theaters or other public places, the number proportional to the attendance. They must each contain water or some disinfectant. Above every cuspidor is a placard with the words: "Hygienic cuspidor. For reasons of public health it is forbidden to spit on the floor."

The Helmholtz Medal.—About the time that the world was doing homage to the father of laryngoscopy at London, another son of Spain was being honored by the presentation of the great gold Helmholtz medal from the Academy of Sciences at Berlin. This medal was endowed as a prize for work bearing directly on ophthalmology. It was first presented to the distinguished Dutch ophthalmologist, Donders, and was awarded this year to Ramon y Cajal of Madrid for his research on the optic chiasm.

International Congress on Industrial Accidents.—This international gathering will convene at Liège, Belgium, May 29 and will adjourn June 4. The opening of the congress will coincide with the coming into force in Belgium of the new law in regard to compensation for accidents to workingmen. Among the subjects appointed for discussion are "Traumatic Neuroses," "Malingering and Voluntary Aggravation of Results of Accidents," and the "Basis for a System of International Statistics of Industrial Accidents." The congress is under government auspices, and Dr. Poels, Marie Thérèse 2, Brussels, is the secretary.

Teaching of Hygiene in British Schools.—A system of instruction in hygiene has been prepared by a committee of physicians and recommended for use in the public schools of the United Kingdom. This action is the outgrowth of the agitation in 1903 on what was called the national physical deficiency and which was in part attributed to the use of alcoholic drinks and narcotics. In 1904 a committee of thirty-one British physicians issued a petition for public school study of hygiene and temperance. Over 15,000 physicians indorsed this plan. The committee included Sir Thomas Barlow, Sir Lauder Brunton, Sir Victor Horsley, Sir William Macewen, Sir Henry Thompson, Prof. G. Sims Woodhead and others. The system adopted is based on that in use in the schools of many of the states.

The Roentgen Congress at Berlin.—THE JOURNAL announced some months ago that great preparations were being made for a congress and exhibition this spring to celebrate the tenth anniversary of the discovery of the *x*-rays. A critical retrospect over what has been accomplished in these ten years in roentgenology, and the presentation of the actual status of technic, achievement and prospects have been planned for April 30 to May 3. The exhibition will be held in the Ressource building, Oranienburgerstrasse 18, Berlin. Professor Roentgen, of course, is to be the guest of honor. His statue has recently been installed on one of the city bridges. The German Congress of Surgery and of Orthopedic Surgery will immediately precede the Roentgen Congress, and the Congress of Internal Medicine will meet at Wiesbaden a fortnight before.

German Society for Social Medicine, Hygiene and Medical Statistics.—The first scientific meeting of this new organization was held at Berlin last month. The question of medical certificates in case of industrial accidents and the claims for indemnity based thereon was discussed by a high government official. Dr. Gottstein exhibited tables, made from the material collected by a life insurance society, which showed that the

relations between the chest measure and the height afford reliable presumptive data for estimation of the tendency to pulmonary tuberculosis. Another physician presented charts which showed the minimum eyesight required in various vocations. These tables were compiled for the purpose of guiding the young in their choice of a life vocation, warning them away from careers for which their visual acuity is not sufficient.

Smallpox in Shanghai.—The situation in Shanghai has become so acute that it is a menace to the entire shipping of the Orient. Eight vessels are already known to have carried smallpox from that port, and the true number is no doubt far in excess of the figures given. Acting Assistant-Surgeon C. A. Ranson has been asked to vaccinate all crews and steerage passengers before permitting vessels to proceed to ports of the Philippine Islands. According to the *Public Health Reports* the infection has even been conveyed aboard vessels which anchor at Woosung, a distance of 14 miles from Shanghai and from which the passengers are reported not to have left the vessel. In such cases the infection was no doubt carried aboard by the Chinese stevedores. Health authorities consider the situation sufficiently serious to warrant calling the attention of all quarantine officers stationed at United States ports to the liability of smallpox infection being present on vessels that have touched at the port of Shanghai.

Laryngology at the Approaching International Medical Congress.—A large number of prominent laryngologists from various countries attended the Garcia centenary celebration as delegates from various societies or as guests of the committee in charge. They took advantage of the opportunity to discuss the question whether to hold independent international congresses of laryngology or to be content with a special section in the international medical congresses. The matter has been brought up before and each time it has been decided that the opportunity afforded by the international medical congresses was sufficient. Great dissatisfaction was expressed, however, with the regulations of the approaching Lisbon congress, which has grouped rhinology, otology and stomatology with laryngology, the four forming Section XII. It was definitely agreed that unless the committee of organization change this state of affairs and give laryngology a more distinct position, the delegates assembled would take no part in the congress, and would use their influence to the same effect in the societies which they represented.

LONDON LETTER.

Hospital Economies.

Much attention has lately been devoted to the cost of the maintenance of hospitals. In 1903 the committee of the Hospital Sunday Fund reduced their awards to the 38 London hospitals on the grounds that the average cost of treating the in-patients was too high. The committee of the National Hospital for the Paralyzed and Epileptic at once made a systematic attempt to effect reforms. Although their expenditure was much lower than that of most of the institutions condemned, they commenced an inquiry into details and into the direction in which saving might be effected. As a result the cost per bed was reduced from $470 to $405 per annum. The change introduced effected a saving of $8,450 in the yearly domestic expenditure and of $1,000 in the expenses of the surgery and dispensary. These results were largely due to the help of ladies. A committee was appointed consisting of the matron of the hospital and six other ladies connected with hospitals and poor law institutions. By their advice the period of meat contracts was lengthened and town-killed foreign beef was substituted for English beef; the prices of fish, fowls, bacon and milk were reduced, and a method of purchasing vegetables and fruit based on taking advantage daily of the condition of the market was instituted. The ladies showed that the system of cutting bread for patients occasioned waste; that the cooking ovens were not the best suited for the work; that the employment of a skilled carver in the kitchen, instead of carving the joints in the wards, would effect large economies; that much cheaper crockery than that used would answer all ordinary purposes; that some electric light lamps were of unnecessarily high candle-power and badly distributed; and, finally, that it would be more economical in every way to employ a female housekeeper than a steward. The economies in the surgery and dispensary were due to the assistance of the medical staff, which was invited. Another fact which shows that there is a want of economy in the management of the London hospitals is the great variations in the cost of maintenance of them and the much higher figures of London than of Scotland. A man who was requested to subscribe to the London Hospital brings out this fact very well in a letter to the *Times*. He asked for a copy of their annual report and compared the cost of maintenance with that of the Dundee Royal Infirmary and found it to be twice as great. A higher cost was to be expected in London, but not such a difference. The following is the annual cost of maintenance per bed in a number of institutions (excluding out-patients): London Hospital, $530; Charing Cross Hospital, $495; Guy's Hospital, $515; Middlesex Hospital, $472; St. George's Hospital, $725; St. Thomas' Hospital, $568; Royal Infirmary, Aberdeen, $246; Royal Infirmary, Dundee, $228; Royal Infirmary, Edinburgh, $310; Royal Infirmary, Glasgow, $318; Royal Infirmary, Liverpool, $278; Royal Infirmary, Manchester, $323; General Infirmary, Leeds, $366.

The Garcia Centenary.

The one hundredth birthday of Don Manuel Garcia, the discoverer of the laryngoscope, who is living in London, has been fitly celebrated by the homage of the scientific and medical worlds. The old man is still wonderfully hale and was able to attend and to take part in the various functions held in his honor. The formal celebration took place at midday at the Royal Medical and Chirurgical Society's house in Hanover Square, which was crowded with delegates of universities, learned bodies, laryngologic and musical societies, and old friends. Among those present were the Spanish chargé d'affaires, Madame Garcia (wife), and Miss Garcia (daughter), Professor Fraenkel (representing the Prussian secretary of state for public instruction), Sir Felix Semon, Sir W. Broadbent, Mr. Sargent, R. A., Sir A. Mackenzie, Mr. Macfarren, Mr. Santley (the singer). On entering Signor Garcia was greeted with loud cheers. He wore the insignia of the Honorary Commandership of the Royal Victorian Order which had just been conferred on him by the king. He looked remarkably well and took a lively interest in the proceedings. He sat alone on a chair of state on a dais in full view of the company. Sir Felix Semon, chairman of the Garcia committee, in opening the proceedings announced that the king had just received Garcia at Buckingham palace in order to present his congratulations and to express his recognition of all that the old man had done for medicine and music. At the conclusion of the interview the king expressed a wish to be personally represented at the banquet that night and delegated his lord-in-waiting, Lord Suffield, to attend. The Spanish chargé d'affaires delivered a congratulatory message from the Spanish government and invested Garcia with the Royal Order of Alfonso XII. Professor Fraenkel said that the man whom they were assembled to honor had devoted his best days to the teaching of singing and had not been content to discover the secrets of voice culture by sound alone, but had proceeded in a thoroughly scientific way. His genius had thrown light on the hitherto dark place of the larynx and the source of the living human voice. He had thereby laid the foundation of the physiology of the voice. On behalf of the German emperor he conferred on him the rarely awarded distinction of the great gold medal for science. An address from the Royal Society was presented by the principal secretary, Sir Archibald Geike, Professor Darwin and Professor Halliburton. Other addresses were delivered from the University of Koenigsberg, the Victoria University of Manchester and the Medical Faculty of Heidelberg. An address was delivered from Garcia's old pupils, among whom are included Madame Marchesi and Mr. Santley. Mr. Otto Goldschmidt, the husband of Jenny Lind, said that his wife to the end of her days continued to venerate Senor Garcia. An address from the Royal Academy of Music was followed by one from the Royal College of Music. Addresses from laryngologic societies all over the world were then read. Among those represented were the American Laryngological Society and the Section of Laryngology of the New York Academy of Medicine. Congratulatory telegrams were received from the Moscow Laryngological Society and the Medical Society of Japan. The program was brought to a conclusion by the presentation to Garcia of his portrait, painted by Mr. Sargent, which was subscribed for by international admirers. In the evening Garcia was entertained at a banquet at which more than 400 persons were present. Sir Felix Semon proposed his health and related the history of the discovery of the laryngoscope. Garcia, who was almost overcome by emotion, responded, but after delivering a few sentences he was evidently somewhat exhausted and handed the manuscript of his speech to the chairman, who read the remainder. He was also able to attend a dinner party given

by Sir Felix Semon at the German Club, where he told many interesting anecdotes of his early days and delivered a speech in French.

Epidemics of Plague and Smallpox in India.

The official returns of plague mortality for the last week in India show that the deaths reached the enormous number of 45,000, 12,000 in excess of the highest record since 1896. Of this total the united provinces of Agra and Oudh are responsible for 20,000 and the Punjab for 12,000. In Bombay, in addition to plague, a severe epidemic of smallpox is raging. The fever hospitals are crowded with cases and the number of physicians and nurses is totally inadequate to deal with the outbreaks. Every obstacle is placed in the way of disinfection of stricken areas by the natives, who bitterly oppose it both in consequence of religious and of caste prejudices. In the larger of the afflicted communities some headway is being made in the direction of inducing the people temporarily to abandon their villages when shelter can be found for them elsewhere. As before, the greatest mortality is among women. This is attributed to the fact that they spend most of their time in their houses and rarely wear shoes, thus rendering themselves specially liable to contagion from dead and dying rats. In the towns a vigorous crusade against rats is being conducted with great vigor and a reward is given for every rat slaughtered.

Typhus Fever in London; Diagnosis Missed.

An outbreak of typhus fever has occurred in the borough of Stepney. The disease has been practically unknown in the metropolis for a considerable period, so that very few physicians have ever seen a case. The result, as in the recent epidemic of smallpox, has been that want of practical acquaintance with the disease has led to erroneous diagnoses. A family consisting of father, mother and six children lived in a house which was kept in good condition. The father, a tailor, had been working in a country town, returned home, and immediately fell ill. He was attended by a physician who thought that he detected pleurisy, but after some days the patient got better and returned to his work in the country. He found that he was too weak to work, and after a few days he returned home. Five days later his daughter, aged 12, was taken ill with headache, vomiting and fever, and attended once at the London Hospital. She was then treated by a physician at her home. After a week he diagnosed typhoid fever and she was removed to a fever hospital. There, in a few days, the superintendent diagnosed typhus fever. Some days after her removal one of her brothers fell ill and was taken to the London Hospital, where he was admitted as suffering from rheumatism, but three days later the diagnosis was changed to typhoid fever. Subsequently the suggestion of typhus fever was made, and this was confirmed on hearing of the sister's case. About a week after the removal of the boy to the hospital two other children, aged respectively 9 and 10 years, fell ill and were at once sent to the fever hospital, where typhus fever was diagnosed at once. The physician who attended the first child fell ill a few days after she was removed to the hospital. He was admitted to the London Hospital, where he was supposed to be suffering from influenza. He rapidly grew worse and had marked mental symptoms and died in a fortnight. The cause of death being obscure, a necropsy was made. The spleen was found enlarged and the lungs congested, while the blood presented the characters common in acute pyrexial diseases. The health officer believes the case to have been one of typhus, but the certificate given at the London Hospital gave as the cause of death influenza and toxemia.

The Importance of Truthful Answers by Applicants for Life Assurance.

The following case occurred recently. A man insured his life for $5,000 on Sept. 30, 1903, and died on November 31 of the same year. The insurance company refused to pay on the grounds that his answers were untrue. As usual, he had signed a declaration that his answers were true and that they were to be the basis of the proposed contract. In answer to the question whether he had ever met with an accident he said "No," but it was proved that in the preceding month he had met with an accident by falling, for which he had been attended by a physician and for which he had made a claim on, and received payment from, an accident insurance company. Asked whether he had consulted any physician within the preceding five years, he said "No." The case was taken into court and tried before the lord chief justice, who put the question to the jury whether in their opinion the questions referred to such an accident as had befallen the insured, adding: "There are all sorts of accidents; for instance, we may spill a teacup, and that is an accident." This summing up apparently upset the minds of the jury, who brought in a verdict that the injury was not of sufficient importance to need mentioning. While the jury were out of court considering their verdict the judge caused some surprise by informing counsel for the company that if the jury found against them he would not deliver judgment on that day, but would appoint a day when he would hear counsel again and give his decision. It looked, therefore, as if he thought that the jury might be led astray by his charge. When the case came before him again he said that he had been wrong in leaving the question to the jury and that he must give a verdict for the company. The case was taken to the Court of Appeal by the widow of the insured man. Her counsel urged that the accident was so trivial as not to affect the risk the company was taking. In giving judgment, Lord Justice William pointed out that a true answer to the questions was the basis of the contract, and without calling on counsel for the company, dismissed the appeal. Commenting on the case, the *British Medical Journal* points out the absurdity of the lord chief justice's charge which asked the jury to say whether the answers given by the proposer was sufficient for the purposes of the medical examiner, who uses them as the basis of his conclusions.

Why Sir Frederick Treves Retired from Practice: Too Much Success.

In an article contributed to a lay magazine Sir Frederick Treves has given an interesting account of his work and has explained why he relinquished practice when while still a comparatively young man and in the height of his fame. He simply found the work so great that life was not worth living. "Not that my labors were breaking me down. Nothing would, I think, do that. I have no nervous system, not having had need of one, and I have never had to keep to my bed. I was invariably downstairs at 5 a. m., I breakfasted at 7:30, and almost without exception there was an operation at 9. Then right up to 1 p. m. there were patients to see. After that I went out, and, having lunched in my carriage, devoted the afternoon to consultations. When did I get home? At all hours. I gave it up because there was too much to do. Performance of big operations every morning makes existence rather trying. I got tired of my duties; they bored me to death; so that after twenty-six years of practice I retired." Sir Frederick Treves retains, of course, his post of sergeant-surgeon to the king, which involves not only his personal services to the king, but also his being sent to consult in surgical cases when the patients are friends of the king. Recently he operated successfully for appendicitis on the Princess Victoria, the daughter of the king. Sir Frederick is also head of the medical civilian board of the army medical department.

Sir Frederick Treves on the Use of Hospital Funds.

Sir Frederick Treves has made some valuable criticisms on the recent report of the committee of the King's Hospital Fund on the financial relations between hospitals and medical schools, which has been referred to in THE JOURNAL. Though he considers the report valuable and lucid, he does not think that it considers the matter sufficiently from the patient's point of view. In a hospital with a medical school, he points out, the surgeon diagnoses a case or performs an operation, watched and criticised by students, who in the future can influence for good or ill his reputation. Under such criticism he does his best and the patient is benefited. If the surgeon goes round with only nurses and dressers, however honest he be, it is improbable that he will take the same anxious pains in the diagnosis and treatment of every case. Another important point is that in a hospital with a school, if the surgeon makes mistakes he is found out at the necropsies.

The Registrar General's Annual Report.

The registrar general's sixty-sixth annual report, for 1903, contains considerable matter of interest. Much attention in recent years has been given to the depression of the marriage and birth rates. As a result of criticism in the general register office, a new method of presenting the ratios of marriages and births has been adopted. The basis of the total population is not regarded as satisfactory. For the marriage rate, a better standard is obtained by eliminating the already married persons from the population, and calculating the rates on the unmarried and widowed above the age of 15, thus dealing with that section of the population alone in which marriages take place. Calculated by this method, the English marriage rate

has steadily declined during the last 20 years, while the rate calculated in the ordinary way shows a slight increase. For the birth rate, again, the total population is not regarded as the best basis of calculation, because it does not take into account age constitution of the female population, particularly of that portion at the child-bearing age. For example, the population of women aged from 15 to 45 years to the total population, which was 23.1 per cent. in 1871 and in 1881, rose to 25 per cent. in 1901. If, therefore, the average fecundity of the female population had remained constant, the births registered in 1903, which numbered 948,271, would have amounted to 1,250,000. Thus the better method of measuring the birth rate is to calculate the proportion of births per 1,000 women of the child-bearing ages. The result shows a decrease far greater than that indicated by rates based on the total population. The English birth rate calculated in the ordinary way appears to have decreased by 6.8 per cent. only in the last decade, but the decrease, based on the number of child-bearing women, amounts to 11.5 per cent. In mortality rates the same disturbing factor of changing age constitution of the population is operative. With regard to infant mortality, the rule is that it is high in countries with a high birth rate, but English experience shows that high infant mortality may accompany a comparative low birth rate. In the decade from 1893 to 1902 the infantile mortality averaged 152 per 1,000 births. The death rate in England has shown a steady decline since 1854, when it was 23.5. In 1903 it was 15.4. As to the causes of death, consumption still heads the list. The following are the principal causes of death per million of the population: Consumption, 1,203; pneumonia, 1,124; bronchitis, 1,112; cancer, 872; heart disease, 825; diarrhea, 542; Bright's disease, 283; measles, 274; influenza, 189; diphtheria, 182; scarlet fever, 125; typhoid fever, 100. Old age is returned as the cause of death in 902 cases per million. In the mortality from consumption there is a steady fall; it is only three-fifths of what it was 25 years ago. Cancer, on the other hand, is increasing. Some diseases are disappearing entirely. There was not a single death from rabies in 1903, which is to be attributed to the stringency with which the order for the muzzling of dogs was carried out some years ago.

Pharmacology

The Question of Proprietaries.

An editorial that appeared, some time ago, in the *Vermont Medical Monthly*, on the question of proprietaries, is being widely disseminated by manufacturers of secret nostrums as an argument in favor of the use of their particular product. While the editorial itself may be said to present a number of the more important phases of the question in a rather doubtful, if not altogether misleading manner, in its concluding remarks, it clearly outlines the true causes, or the underlying reasons, for what the editor is pleased to denominate hysterical opposition to the use of proprietary remedies. It will be safe to assert that no one who has given this question a reasonable amount of thought, would be willing to differ from the opinions expressed by the editor, when he says "In regard to dishonest proprietaries no argument or condemnation is necessary. They are not what they claim to be, they betray the trust, they falsely create and they are evils that should be fought. Experience is often necessary to discover them, but when discovered they should be given a wide berth."

This statement, as noted before, embodies the true cause of the present and of every previous atempt by fair minded individuals to inquire into, and if possible to regulate the use of proprietary medicines. It is the dishonest proprietaries, and the dishonest proprietaries alone, that are objectionable. The problem that confron's us, however, and it is here that many of us differ from the editor of the *Vermont Medical Monthly*, is the question of whether or not we may, individually, assume to segregate the honest and truthful from the dishonest and misleading by following the questionable, and frequently uncertain procedure of subjecting our patients to the risk and to the expense of the experimentation or by allowing ourselves to be used for exploiting some proprietary article as a patent medicine to the laity. As members of a liberal profession, as unbiased searchers for the germ of truth, or as fair minded and honest medical advisors of individual patients can we, under any circumstance, countenance or continue to use substances of whose composition, uses or limitations we can have little or no assurance other than the statements of the manufacturer or his agents!

Pharmacists' View of Physicians and Proprietary Remedies.

It is well at times to see ourselves as others see us, and in this connection it is interesting to quote from a paper by George M Beringer, Ph.M. "The Evolution of Nostrum Vending and Its Relation to the Practice of Medicine and Pharmacy," published in *The American Journal of Pharmacy*, April, 1905. After taking up the history of nostrums he says: "The blame, however, cannot be laid at the door of pharmacy alone but must be shared by both professions. We all know that in recent years a class of proprietaries have been directly offered to the physicians and prescribed by many, that have in most instances but very little to elevate them above the level of the common ordinary nostrums that are advertised direct to the public. Our prescription files show that physicians are prescribing such remedies without having but a very indefinite idea of the ingredients or actions." Mr. Beringer then quoted from a medical journal, "Boys, I'm going to give you a prescription which makes the treatment of pneumonia a cinch. Put 10 drops of tincture of ipecac and 10 drops of tincture of aconite to 4 ounces of respiton and give ½ to 1 teaspoonful every two or three hours. Is there a single pharmaceutical journal in America even among the 'house organs' that would lend its pages to such a thinly veiled advertisement and such an undignified appeal to its patrons?"

"To what, may be asked, can we attribute this tendency among physicians to depart from officially recognized preparations and methods of prescribing? Is it due to any lack of proper instruction in the medical departments of the universities and colleges? It is exceptional indeed to find among practitioners of medicine any great percentage who are proficient in chemistry, and to a still larger proportion, botany is a sealed book. Under these conditions was not the following statement, attributed to a prominent pharmaceutical manufacturer, well founded? The average physician of to-day gleans his knowledge of materia medica from the patent medicine man's circular.' It is certain that this lack of acquaintance with materia medica is appreciated by the manufacturer of such proprietaries, and his circulars and advertisings are framed accordingly. Of course, some of the remedies introduced as proprietaries have proved to be useful, and the success of such has always had an influence on the practice of medicine and likewise on the pharmacopeias. The present United States Pharmacopeia contains a number of such preparations, which are recognized under official titles and properly used. In the forthcoming edition of the pharmacopeia, probably under such titles as Liquor Sodii Phosphatis, Liquor Antisepticus and Cataplasma Kaolini, we will discern some substitutes for well-known proprietaries. It must be acknowledged that the practice of medicine is influenced to a considerable extent by the character of the surrounding community. The practice of pharmacy is still more influenced by the environment, and also by the medical practice of the neighborhood. There was no marked progress in pharmacy until the advance was inaugurated by medicine, and so in the elimination of this evil the two professions must work together, but it must be apparent that physicians must cease prescribing proprietaries before the pharmacist can cease dispensing the same. If the commercialism that has marked in many localities the practice of medicine could only be discontinued, and the physicians rise to the true dignity of their profession, how soon would the pharmacists seize the opportunity of elevating their calling and of relegating this abominable nostrum vending to ancient history. There is a great responsibility resting on pharmacy which it must bear independently of that shared by medicine. We are entirely too willing to encourage every new applicant that comes along to be advertised to the suffering public."

Correspondence

Cerebrospinal Meningitis in Animals and in Man.

UNIVERSITY OF IOWA, IOWA CITY, IOWA, April 3, 1905.

To the Editor:—The subject of cerebrospinal meningitis seems to have assumed considerable importance during the past few weeks because of the large number of cases which have recently occurred in New York and in other eastern places. It may not be inappropriate to mention at this time certain rather interesting results concerning this disease process, obtained recently, at the Iowa State Board of Health Bacteriological Laboratory.

On Feb. 20, 1905, Dr. H. E. Talbot, a veterinary surgeon residing in Des Moines, sent to the laboratory parts of the brains of several cattle which he reported had died with symptoms suggesting cerebrospinal meningitis. On bacteriologic examination of the specimen by Mr. Shekwana and myself, a diplococcus which from its morphologic, staining and cultural characteristics was found to be indistinguishable from the *Diplococcus intracellularis meningitidis* was found. A rabbit was inoculated beneath the dura mater with a pure culture of this micro-organism. The animal developed symptoms of cerebrospinal meningitis within fifteen hours and died in thirty hours. At autopsy a small amount of a serofibrino-purulent exudate was found in the pia-arachnoid membrane. The posterior half of the brain was found to be most extensively involved. The exudate contained quite a large number of diplococci, many of which were found to be within the cells. A careful examination of the organism was made and again it was found to be indistinguishable from the *Diplococcus intracellularis meningitidis*. We concluded therefore that it was the same organism.

On looking over the literature of the subject, I am able to find but one reference to the isolation of this organism as the causative agent of a disease process (excluding experimental studies) in a body not that of the human being. The one instance referred to is the identification of this organism as the cause of an epidemic among cattle in Minnesota—reported in the Biennial Report of the Minnesota State Board of Health for 1898, page 180 and also by Wilson and Brimhall in the January, 1904, number of the American Veterinary Review (Vol. XXVII, No. 10, page 944). That the specific form of cerebrospinal meningitis occurring in cattle and man and caused by the same organism is one and the same disease there seems to me to be little doubt. That the micro-organism is transferable from the one to the other appears to me most probable, and that the organism may cause meningitis in animals other than the human being is an interesting fact to note. Whether or not the passage of the organism through animals has a tendency to increase its virulence; whether or not such has anything to do with the outbreaks of the disease in epidemic form and whether or not this factor is of importance in connection with the recent epidemics in the east, would be interesting to determine. The cases among cattle in Iowa do not seem to be associated with any cases among human beings. A few days ago we were informed that the epidemic among the cattle is becoming more extensive. We shall continue our investigations and shall be pleased to report to you when further results are obtained.

HENRY ALBERT,
Director Iowa State Board of Health
Bacteriological Laboratory.

Association News

An Invitation to Portland Via Los Angeles.

LOS ANGELES, CAL., March 27, 1905.

To the Editor:—In your various allusions in THE JOURNAL to the Portland session and matters pertaining thereto, I beg that you do not fail to call the attention of the profession to the desirability of procuring a ticket to Portland via Los Angeles. There is a too-widespread belief throughout the East that, as this country is so warm in winter, it must be almost unendurably hot in summer. It is not so at all. San Diego, Los Angeles, Santa Barbara, in fact the coast towns, are cool and delightful. We who live here much prefer the summers to the winters. Then, too, the remarkable sea fishing at that enchanted isle, Catalina, is at its height in summer. I admit that the towns more than thirty miles to the interior are much hotter. But any of the physicians who will stop off en route to or from Portland, taking in the above mentioned places, will enjoy one of the treats of their lives. The government thermometer readings taken in this city show the mean temperature for July to have been, in 1902, 68; 1903, 68, and 1904, 70. Please come here, as many as can.

J. H. MARTINDALE.

Excursion to Alaska.

It is important that those who are thinking of taking in the Alaska trip after the annual session at Portland should at once inform the chairman of the committee of arrangements, Dr. K. A. J. Mackenzie, Portland, Ore. It is necessary that he should know approximately how many will go before he can make the preliminary arrangements.

NEW MEMBERS.

New members for the month of March:

ALABAMA.
Bowcock, R. L., Anniston.
Pitts, McLean, Selma.
Steele, A. N., Anniston.
Turner, Wm. B., Graselly.

ARKANSAS.
Biggs, E. L., Hot Springs.

CALIFORNIA.
Barber, George Holcomb, San Francisco.
Christal, J. F., Santa Cruz.
Enloe, N. T., San Francisco.
Filipello, E. A., San Jose.
Hurlbut, E. T. M., Sebastopol.
Hedgpeth, W. R., Santa Cruz.
Harris, Ross Allen, Los Angeles.
Hart, Morton E., San Francisco.
Love, J. H., Ventura.
Love, J. A., Fortuna.
McGuire, J. A., Santa Cruz.
Payton, J. E., Redlands.
Stoddard, C. S., Santa Barbara.

COLORADO.
Haviland, C. M., Ft. Collins.
Reed, D. W., Greeley.
Spencer, F. R., Boulder.

CONNECTICUT.
Blackman, Chester E., Bridgeport.
Butler, Wm. J., New Haven.
Chase, Arthur A., Plainfield.
Smith, H. F., Hartford.

DISTRICT OF COLUMBIA.
Smith, Harold W., Washington.
Strite, Clarence Edward, Washington.

FLORIDA.
Meagley, Frederick, Daytona.
Moor, F. Clifton, Tallahassee.

GEORGIA.
Cato, R. E., Americus.
Clay, T. S., Savannah.
Dorminy, E. J., Fitzgerald.
Hodgson, Fred Grady, Atlanta.
Meldrim, Chas H., St. Simon's Mills.
Murphey, Eugene E., Augusta.
Ross, J. T., Macon.
Todd, J. S., Atlanta.
Wilmerding, W. E., Atlanta.

IDAHO.
Poole, Francis H., Ross Fork.
Young, James A., Pearl.

ILLINOIS.
Bell, George, Chicago.
Barker, B. L., White Heath.
Churchill, Frank S., Chicago.
Curry, A. B., Bloomington.
Drueck, C. J., Chicago.
Dwyer, Anna, Chicago.
Green, Frederick R., Chicago.
Jacobson, A., Chicago.
Korsell, C. F. P., Chicago.
Lindquist, Jno. F., Chicago.
Poynton, R. A., So. Chicago.
Soliday, Virginia R., Chicago.
Sloan, E. P., Bloomington.
Wessels, Walter Fredk, Mendon.
Yarros, Rachelle S., Chicago.

INDIANA.
Emerick, T. C., Mt. Vernon.
Spurgeon, Orville E., Muncie.

INDIAN TERRITORY.
Wilson, W. A., Cornish.

IOWA.
Blocklinger, A. H., Dubuque.
Middleton, G. M., Davenport.
Morrison, Jno. W., Alta.
Van Epps, Clarence, Iowa City.

KANSAS.
Hearst, A. L., Benedict.
Logsdon, W. T., Wichita.
Smith, Albert Godfrey, Oskaloosa.

KENTUCKY.
Chumbly, Chas. A., McGuffy.
Nichols, C. L., Louisville.
Thomas, Robert A., Bowling Green.

LOUISIANA.
Williams, Esby M., Morgan City.

MARYLAND.
Cox, N. H. D., Arlington.
Knorr, E. A., Baltimore.

MASSACHUSETTS.
Hayward, W. F., E. Brookfield.
Robertson, W. B., Worcester.

MICHIGAN.
Cornwell, Edwin S., LaSalle.
Hoag, F. L., Ionia.
Hubbert, W. R., Detroit.
Matthews, J. D., Detroit.
Parker, W. E., Dowagiac.
Shotwell, Carlos W., Detroit.
Smith, Virginia T., Spring Lake.
Seager, Geo. B. M., Adrian.

MINNESOTA.
Gordon, Geo. J., Minneapolis.

MISSISSIPPI.
Shepherd, Banks A., Lexington.

MISSOURI.
Hoagland, W. L., Kansas City.

Homan, Geo., St. Louis.
Lewis, Jacob K., Kansas City.
McDonald, Park L., Kansas City.
Schudde, O. N., Vienna.
Vernon, Geo. W., Dexter.

NEW HAMPSHIRE.

Buzzell, C. P., Conway.

NEW JERSEY.

Baketel, H. S., Jersey City.
Brückner, Charles Henry, Newark.
Seeds, John B., Trenton.

NEW MEXICO.

Strong, S. Meredith, Santa Rita.

NEW YORK.

Beal, Frederick E., New York City.
Greeff, J. G. William, New York City.
Howell, C. H., New York City.
Nellis, Irving O., Herkimer.
Pick, Chas. J., New York City.
Reich, A., New York City.

NORTH CAROLINA.

McCracken, J. Rufus, Crabtree.

OHIO.

Brokaw, W. F., Cleveland.
Bevington, E. E., Sulphur Springs.
Buechner, W. H., Youngstown.
Beach, P. E., Seville.
Brady, M. B., Cincinnati.
Crooks, J. H., Youngstown.
Dalbey, R. A., Youngstown.
Powell, E. A., Cleveland.
Smith, Anna G., Toledo.

OKLAHOMA.

Grantham, Elizabeth, Alva.

OREGON.

Wight, Otis B., Portland.

PENNSYLVANIA.

Baugh, A. W., Paoli.
Buchanan, S. A., Philadelphia.
Collmar, C., Easton.
Danzer, Wm. F., Hazleton.
Fell, John A., Doylestown.
Gillespie, Frank, Oxford.
Haworth, Elwood B., Pittsburg.
Hammond, Henry P., Franklin.
LeCompte, W. C., Bristol.
McCombs, W. H., Pittsburg.
Myers, Hewitt Clyde, Steelton.
Smith, Chas. B., Newtown.

RHODE ISLAND.

Moore, Elmer E., E. Providence Centre.

SOUTH DAKOTA.

Baker, A. R., Lead.
Judd, Herman S., Lead.
Tarbell, Hervey A., Watertown.

TEXAS.

Davis, O., Clatern.
Keys, Thomas L., Rockwall.
Michie, Joseph D., Heath.
Quarles, J. M., Post Oak.
Wilder, H. Lawler, Granbury.

VIRGINIA.

Brumfield, W. A., Renan.
Blankingship, O. F., Richmond.
Hobson, E. L., Jr., Richmond.

WASHINGTON.

Cassel, Rufus J., Mt. Vernon.

WISCONSIN.

Beck, H. M., Green Bay.
Bellin, Julius Joseph, Green Bay.
Coleman, Harry M., Barron.
Evans, N. C., Mt. Horeb.
Goggins, Robert J., Oconto Falls.
Howlson, N. L., Menomonie.
Hansen, Carl A., Argyle.
Lewis, L. V., Sun Prairie.
Omsted, N., Stoughton.
Oberembt, R., Milwaukee.
McCracken, R. W., Union Grove.
Newbury, F. H., Oshkosh.
Rogers, E. H., Stevens Point.
Tomelty, Thomas, Mukwonago.
Thompson, A. S., Mt. Horeb.
Whitney, D. C., Rice Lake.

PHILIPPINE ISLANDS.

Strong, R. P., Manila.

Marriages

CHARLES W. HOUGHTON, M.D., to Mrs. S. J. Whitaker, both of Philadelphia, March 18.

GEORGE L. WILKENS, M.D., Baltimore, to Miss Annie Beatin, at Philadelphia, March 28.

CARL S. BUNGARDT, M.D., to Miss Linnie Eugenia Bush of Kansas City, Mo., April 3.

EARL M. SAPPINGTON, M.D., Darlington, Md., to Miss Hattie C. Porter, at Baltimore, March 23.

BURTON C. HAUSER, M.D., Wilkesbarre, Pa., to Miss Achsah L. Mitchell, at Baltimore, March 20.

W. H. HALL, M.D., Butte, Mont., to Mrs. Purden Smith-Miller of Los Angeles, Cal., March 22.

G. LANE TANEYHILL, JR., M.D., Baltimore, to Miss Ethel Cranston, at Washington, D. C., March 25.

ARCHIBALD C. SHEPPARD, M.D., Glen Carbon, Ill., to Miss Wilhelmina Beyerbach of St. Louis, March 21.

AUGUST FREDRIC HUNTE, M.D., Truman, Minn., to Miss Christine Schaleben of Madelia, Minn., March 23.

DANIEL WARWICK HARMAN, M.D., U. S. Army, to Miss Vertie M. Irvine of Charlottesville, Va., March 20.

OTTO L. RICKER, M.D., Cadillac, Mich., to Miss Nellie Beatrice Shupe of Fostoria, Ohio, at Cadillac, March 21.

Deaths

William H. Warder, M.D. University of Nashville Medical Department, 1859; Jefferson Medical College, Philadelphia, 1871; a member of the American Medical Association, Medical Society of the State of Pennsylvania, Philadelphia County Medical Society, Philadelphia Obstetrical Society and Medical Club of Philadelphia; orator of the Jefferson Medical Alumni Association in 1886, and president in 1887 and 1898; a member of the obstetrical staff of the Philadelphia Hospital from 1874 to 1881, died suddenly at his home in Philadelphia, March 28, from heart disease, aged 71.

Nathan E. Whitehead, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1867, a member of the American Medical Association; assistant surgeon of the Eighteenth Mississippi Infantry, and later major and surgeon of the Twenty-first Mississippi Infantry, C. S. A.; the dean of the medical profession of Leflore County, Miss., died at his home in Greenwood after a long and painful illness, March 25.

Joseph B. Whiting, M.D. Berkshire Medical College, Pittsfield, Mass., 1848, of Janesville, Wis., one of the oldest practitioners of southern Wisconsin; surgeon of the Thirty-third Wisconsin Volunteer Infantry in the Civil War; surgeon general of the Grand Army of the Republic in 1895; president of the Wisconsin State Medical Society in 1875, died at Palmer Hospital, Janesville, March 27, aged 82.

Frank Horton Rice, M.D. Vermont Medical College, Woodstock, 1854, for ten years city physician of Passaic, N. J., and for five years coroner of Passaic County; chief of staff of the Passaic General Hospital, of which he was one of the founders, died suddenly at his home in Passaic, from heart disease, March 27, aged 74.

Milton Jay, M.D. Eclectic Medical Institute, Cincinnati, 1859; Rush Medical College *ad eundem* 1895; a member of the American Medical Association; a life member of the Chicago Medical Society; for twenty years chief surgeon of the Chicago & Eastern Illinois Railroad, died at his home in Chicago, April 1, from exhaustion following influenza, after an illness of three months, aged 71.

Philip Wesley Lewellen, M.D. Medical College of Ohio, Cincinnati, 1865, formerly senator from Page and Fremont counties, Iowa, in 1878 and 1880; member and president of the State Board of Health; trustee and first superintendent of the Clarinda State Hospital, died at his home in Brookfield, Mo., March 19, from cerebral hemorrhage, after an illness of a year, aged 65.

George Tremont Hunter, M.D. New York University, New York City, 1891, of New York City, formerly of San Francisco, a member of the American Medical Association, New York State Medical Association, Medical Society of the County of New York, and the New York Academy of Medicine, died in St. Augustine, Fla., February 11.

John W. Gamwell, M.D. Berkshire Medical College, Pittsfield, Mass., 1852, formerly of Princeton, Ill., but for the last sixteen years a resident of Pittsfield, Mass., some-time selectman of Torrington, Conn., and in 1876 a member of the state legislature, died at Daytona, Fla., March 26, from asthma, aged 74.

George F. Leick, M.D. Medical Department of the Western Reserve University, Cleveland, 1885, of Cleveland, Ohio, health officer of the city for two years, demonstrator of anatomy at his alma mater, died at St. Alexis' Hospital, Cleveland, from nephritis, after a long illness, aged 48.

Henry C. Mooney, M.D. Chicago Medical College, 1876, a member of the American Medical Association, and one of the most prominent practitioners of Wabash County, Ind., died suddenly at his home in Laketon, March 24, from cerebral hemorrhage, aged 54.

Jesse F. Myers, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1884, city physician of Joplin, Mo., and formerly physician of Jasper County, Mo., died at his home in Joplin, March 22, from tuberculosis, after an illness of four months, aged 48.

William H. Doughty, M.D. Medical College of Georgia, Augusta, 1855, a member of the American Medical Association, and said to be the oldest practitioner in Augusta, Ga., died at his home in that city, March 28, after a protracted illness.

John McCormick, M.D. Western Reserve University Medical Department, Cleveland, 1882, of Greensburg, Pa., died at a sanitarium in Frankford, Philadelphia, from cerebral hemorrhage, March 25, after a long illness, aged 44.

Joseph Deal, M.D. University of Wooster Medical Department, Cleveland, 1849, formerly of Mount Union, Iowa, died at the home of his daughter in Southfork, near Mora, Minn., March 22, from senile debility, aged 84.

Howard Servis, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, of Junction, N. J., died at the home of his daughter in New York City, March 24, from cerebral hemorrhage, aged 75.

Agideous Noel, M.D. University of Maryland School of Medicine, 1862, surgeon of the Two Hundred and Fifth Pennsylva-

nia Volunteer Infantry in the Civil War, died at his home in Bonneauville, Pa., March 26, aged 71.

Lloyd W. Brown, M.D. Baltimore Medical College, 1849, who retired from practice forty years ago, died at the home of his daughter in Decatur, Ill., March 21, from pneumonia, after an illness of three weeks, aged 81.

Richard H. Sullivan, M.D. New York University, New York City, 1883, member of the Kings County Medical Society, died at his home in Brooklyn, March 27, from pneumonia, after an illness of one week, aged 49.

John Oscroft Tansley, M.D. College of Physicians and Surgeons in the City of New York, 1877, a fellow of the New York Academy of Medicine, died at his home in New York City, March 25, aged 60.

Theodore F. Davidson, M.D. Cincinnati College of Medicine and Surgery, 1870, some-time city physician of Portsmouth, died at his home in Columbus, Ohio, March 22, after an illness of ten weeks, aged 59.

Theodore Sittel, M.D. University of Giessen, Germany, 1854, one of the founders of St. Mary's Hospital, Cincinnati, died at his home in South Norwood, Cincinnati, March 25, after a brief illness, aged 76.

Edmund G. Pugsley, M.D. Medical College of Ohio, Cincinnati, 1845, a surgeon in the Army during the Civil War, and later a practitioner of Walla Walla, Wash., died in Tacoma, Dec. 3, 1904, aged 83.

Charles M. Hensel, M.D. Starling Medical College, Columbus, Ohio, 1896, died at his home in Lithopolis, Ohio, March 20, from pneumonia. He was a member of the Fairfield County Medical Society.

James B. Cargen, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1879, died at his home in the town of Oakland, Wis., February 5, from cerebral hemorrhage, after an illness of two years.

David E. Ellis, M.D. Geneva (N. Y.) Medical College, 1843, formerly of Belvidere, Ill., died at the Illinois Northern Hospital for the Insane, Elgin, March 18, from senile gangrene, aged 85.

Francis E. Buck, M.D. Cleveland Medical College, 1879, health officer of South Pasadena, Cal., died at his home in that city from poisoning by carbolic acid accidentally administered, aged 49.

Franklin Kimball Burr, M.D. Rush Medical College, Chicago, 1895, died at his home in Englewood, Chicago, February 20, from cerebral hemorrhage, after an illness of eight days, aged 36.

Charles A. Olcott, M.D. Bellevue Hospital Medical College, New York City, 1876, member of Kings County Medical Society, died from pneumonia at his home in Brooklyn, March 30, aged 50.

Frederic Danne, M.D. New York Medical College, New York City, 1863, died at his home in New York City, March 27, from nervous prostration, after an illness of one year, aged 68.

Charles Parker French, M.D. Castleton (Vt.) Medical College, 1848, died at his home in Denver, February 23, from injuries sustained in a fall two days before, aged 81.

Charles Wright Filler, M.D. University of Maryland School of Medicine, Baltimore, 1876, died at his home in Washington, D. C., March 22, after a prolonged illness, aged 52.

Thomas Dale Gilbert, M.D. The University and Bellevue Hospital Medical College, New York City, 1900, of Washington, D. C., died at Liberty, N. Y., March 29, aged 30.

Emil A. Chaffers, M.D. Michigan College of Medicine and Surgery, Detroit, 1896, died at his home in Detroit, March 26, from pneumonia, after a short illness, aged 42.

Charles Dearborn Wiggin, M.D. Medical Institution of Yale College, New Haven, Conn., 1875, died at his home in Mystic, Conn., from pneumonia, May 21, 1904, aged 63.

John A. Nelles, M.D. McGill University Medical Department, Montreal, 1858, died suddenly at his home in London, Ont., March 25, from cerebral hemorrhage, aged 79.

John Andrew Murray, M.D. Department of Medicine, University of Pennsylvania, Philadelphia, 1894, died at his home in Providence, R. I., Aug. 27, 1904, aged 37.

George W. Welborn, M.D. Medical College of Evansville, Ind., 1877, of Stewartsville, Ind., died in St. Louis, March 23, after a surgical operation, aged 60.

W. F. S. Murdy, M.D. Missouri Medical College, St. Louis, 1878, died at his home at Fort Madison, Iowa, March 30, after an illness of two months, aged 50.

George E. Bullard, M.D. Albany (N. Y.) Medical College, 1853, died at his home in Blackstone, Mass., March 25, after an illness of nine years, aged 78.

Rufus T. Kendrick, M.D. Examination Georgia, of Tifton, Ga., died at the home of his son in Brunswick, Ga., March 26, after a short illness, aged 74.

James Wiltse, M.D. Bellevue Hospital Medical College, New York City, 1890, died at his home in Benson Mines, N. Y., from pneumonia, March 19.

James Fielding Lewis, M.D. University of Louisville (Ky.) Medical Department, 1857, died at his home in Hebbardsville, Ky., February 20, aged 71.

Henry Jackson Shaw, M.D. Department of Medicine University of Pennsylvania, Philadelphia, 1854, died in Memphis, Tenn., March 3, aged 79.

Fabius Fox, M.D. Baltimore University School of Medicine, 1898, died suddenly from heart disease at his home in Baltimore, March 29, aged 42.

James R. Murphy, M.D. University of Louisville (Ky.) Medical Department, 1882, died at his home in Dunmore, Pa., March 27, from uremia.

Edward T. Brown, M.D. Illinois, 1872, died at his home in Lake City, Fla., March 22, as a result of injuries received nine months before, aged 79.

James H. Parcel, M.D. Years of Practice, Illinois, 1878, of Westfield, Ill., died at Anna, Ill., March 16, after a long period of invalidism, aged 76.

William G. Burriss, M.D. Central Medical College, St. Joseph, Mo., 1898, of Ottawa, Kan., died in Kansas City, Mo., from peritonitis, March 24.

Amasa P. Robertson, M.D. Cincinnati 1873, died at his home in Mount Liberty, Ohio, March 25, after an illness of seven weeks, aged 62.

William Bodenhamer, M.D. Worthington (Ohio) Medical College, 1840, died at his home in New Rochelle, N. Y., March 31, aged 97.

Mason J. Snowden, M.D. Meharry Medical College, Nashville, Tenn., of Marshall, Texas, died suddenly in Paris, Texas, March 23.

Oliver H. Irwin, M.D. Medical College of Indiana, Indianapolis, 1870, formerly of Sheldon, Ill., died at Elk City, Okla., March 23.

Abraham Chamberlain, M.D. Years of Practice, Pennsylvania, died at his home in Brooklyn, Pa., March 21, from pneumonia.

Frank D. Wortman, M.D. Ohio Medical University, Columbus, Ohio, 1898, died at his home in Gratiot, Ohio, March 20, aged 40.

Thomas F. Ijams, M.D. Detroit (Mich.) Medical College, 1871, died suddenly at his home in North Grove, Ind., March 26.

Christian J. Knaur, M.D., died at his home in Swissvale, near Pittsburg, Pa., March 26, after an illness of two years, aged 72.

Fernando C. Cook, M.D. New York City, 1874, died suddenly from heart disease at his home in San Francisco, aged 72.

Wellington W. Payne, M.D. Examination Ohio, died at his home in Ashtabula, Ohio, February 7, after a long illness.

James Johnston, M.D. Medical College of Ohio, Cincinnati, 1872, died at his home in Hudson, Ill., March 26, aged 60.

George Clarkson, M.D. St. Louis, 1878, of Providence, R. I., died in Pawtucket, R. I., Sept. 4, 1904, aged 61.

Philip T. Gans, M.D. Cincinnati, 1854, died at his home in West Florence, Ohio, March 20, aged 83.

William Harvey Walford, M.D. Chicago, 1885, died at his home in Chicago, March 29, aged 46.

Book Notices

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 129 Engravings and 10 Full-page Plates in Colors and Monchrome. Cloth. Pp. 1120. Price, $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1905.

This is the third text-book that Dr. Hare has prepared for the medical profession. His first, on therapeutics, was im-

mediately accepted as a standard, and has so remained. The second, on diagnosis, was similarly received. Both of these books became popular and have retained their popularity because the subject matter was presented in a practical manner; the author had recognized the needs of the physician in his daily work, and had supplied the needs. It was to be expected that a text-book on practice by the same author would be of the same character, and the book before us shows these expectations realized. One is not long in discovering that the author has again known what the student and the physician want and has supplied that want. Theory is made subordinate to practical information and facts, and these are presented in the clear and concise style that characterize the author's writings. The book is not a compilation, it is a reflection of the views of its author, whose twenty years' experience as a writer, as a teacher and as a practicing physician qualifies him to speak with authority. In some instances one would almost wish that the views of others might have been given more recognition, but these instances are rare; and better this than a jumbling of the views of a dozen men, leaving the reader in a maze of doubt and uncertainty, as is too often the case in some of the composite text-books. While the book is a large one, containing over 1,100 pages, there is no padding nor cumbering the pages with irrelevant matter. The importance of the subjects of diagnosis and treatment is appreciated and both are made important features. The author holds conservative views regarding the therapeutic value of drugs, and there are to be found from beginning to end repeated warnings against overdrugging. A knowledge of tropical diseases is of prime importance to American physicians since we have become possessed of tropical countries, and these diseases are given fuller consideration than has been usual in our text-books. According to the preface, the articles on these subjects have been prepared by Dr. Charles F. Kieffer, of the U. S. Army, whose experience in the Philippines well qualified him for the task. We congratulate the author on having given us a text-book that will appeal at once to the student, to the busy practitioner and to the teacher, as representing the practice of medicine of the twentieth century. The book is up-to-date and represents the latest knowledge on every subject treated.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, Drawn from Journals, Monographs and Text-Books of the Leading American and Foreign Authors and Investigators. Arranged, with Critical Editorial Comments, by Eminent American Specialists Under the Editorial Charge of George M. Gould, A.M., M.D. In Two Volumes. Volume I. Including General Medicine; Volume II. General Surgery. Fully Illustrated. Cloth. Price, $3.00 net per volume. Philadelphia and London: W. B. Saunders & Co. 1905.

Each year we have had occasion to speak in complimentary terms of this excellent year-book. The method of recording the progress that has been made during the past year, as adopted in this annual, is all that could be desired. The subdivision of the work and the placing of these subdivisions in charge of men interested in the subject covered, make the work satisfactory, especially because it is reliable. A reference to individual subjects here and there shows that nothing of value is missed in the literature that is worth recording. The plan of issuing the annual in two volumes, one devoted to medical and the other to surgical subjects, makes the book more easily handled and of more practical value. We commend this work to those who desire to keep up with the progress that is being made in the various branches of medicine or who want a ready reference to the cream of the literature of the past year.

Miscellany

Aerophagia.—Heinrich Stern states in the *New York Medical Journal* that the presence of the excess of air in the stomach may cause anxiety, dyspnea, palpitation, vertigo and headache. The trouble may arise from hysteria or from extensive work or exercise in the open air. For the acute condition the stomach tube should be utilized to let the air out. Castor oil is useful in ameliorating pronounced intestinal tympany.

California Accepts Its First Chinese Physician.—Dr. Chang A. Holt has recently passed the California Board of Medical Examiners, being the first Chinaman licensed to practice medicine in California. He is 26 years old, and was born in Canton. He has become a Christian. His medical education was acquired in San Francisco. It is reported that he has decided to return to his native country to pursue his profession.—*Med. Book News.*

An Index of the Man.—We are not preaching a sermon, but we venture the assertion that a physician who can not control his own temper nor tongue, can not direct his mental energies nor guide his hands in attempting to solve medical and surgical problems so well as the man who does not expect the powers of heaven and hell to respond to all his little troubles. Neither do we believe that one can make filthy words his bodyguard without losing the intimacy with dignity, devotion and diligence in more serious matters, which the scientific student and trusted physician ought to enjoy.—*Medical Times.*

The Higher Preliminary Education of Medical Students.—A casual consideration of the theory of ions in chemistry, essentially electrical in its nature, shows that that science in the future will demand on the part of the student a knowledge of the higher mathematics. The old "algebra, as far as quadratic equations," will no longer serve his needs, and he must learn the theory of infinitesimals, a genuine knowledge of which requires a rather high quality of mind. Evolution will eventually dispose of the question of the overcrowding of the medical profession.—*New York Med. Journal.*

Dogmatism Out of Place.—The habit of dogmatism, of unconditional assertion and positive, strict directions is an essential qualification for success in the sick room. But it becomes such a fixed habit with the active practitioner that sometimes he can not lay it aside even where it is most inappropriate. In discussing matters of legislation where many interests must be consulted, many conflicting views harmonized, and the path of least resistance followed, to attain important practical ends, dogmatism is quite out of place.—*Colo. Med.*

Experimental Differentiation of Variola and Chicken-Pox.—According to the *Semaine Médicale*, Feb. 22, 1905, at a recent meeting of the Paris Société de Biologie, P. Salmon pointed out that variola is inoculable in the cornea of rabbits, while varicella is not. In from twenty-four to forty-eight hours after inoculation of smallpox material, small transparent lesions develop which become transformed into vesicles and which are accompanied by conjunctivitis. This test also enabled confluent acne of the face to be differentiated from smallpox in one instance. L. Martin announced that he has found monkeys refractory to varicella. H. Vincent also mentioned that inoculation of the rabbit cornea is a convenient way to determine the activity of vaccine. He has learned by this test that the vaccinal virus is arrested by the filter.

The Irresponsibility Farce.—Our German exchanges relate that a certain elderly irregular of Munich has been summoned into court several times within the last few years to answer to charges of fraudulent practices and of practicing medicine without a license. Each time he has been acquitted on the ground that he is mentally irresponsible. He is therefore turned loose to continue his irregular practices without further molestation, until some particularly flagrant act brings him again to the notice of the police and the legal farce is again re-enacted. The *Münch. med. Wochenschrift* is now agitating the question whether the public should not be protected by having him placed under restraint in some asylum or sanatorium for mental affections. This legal farce is similar to that which is sometimes enacted in this country when a criminal is acquitted because of insanity and yet is not put under restraint to prevent repetition of the crime.

Value of Echinacea.—"In my own experience," states Dr. C. S. Chamberlin of Cincinnati, in the *Louisville Monthly Journal of Medicine and Surgery*, "the results attending the use of echinacea have convinced me that there is no remedy of so

great value in the treatment of cases of septic infection, and I have repeatedly used it in the cases of septicemia following wounds of the extremities, which I am confident, by any other means of treatment, would have resulted in the loss of the limb and possibly of the life of the patient." He further recommends it to eliminate toxins and to alter conditions which favor suppuration and inflammation, as in the case of abscesses, ulcers, gangrene, bites of venomous insects and reptiles, tonsillitis, the exanthemata, eczema and psoriasis. Our observation of the medical literature indicates that echinacea is being used far more than formerly.

A New Diagnostic Sign in Basilar Meningitis.—The *Cronica Medica Mexicana* states that Squires reports a symptom which he has invariably found present in meningitis about the fourth or fifth day of the disease; it consists of a rhythmical dilatation and contraction of the pupils. To obtain this sign Squires advises the following procedure: Place the child on the nurse's lap, face upward, and with the head extending over the nurse's knee; the physician then places a hand on each side of the child's head and makes gradual forced extension. The pupils will be seen to dilate rapidly in proportion to the degree of extension. If the child's head be now gradually and forcibly flexed, the pupils will be seen to contract, almost completely closing as the chin touches the chest. This procedure may be repeated several times in order more fully to observe the phenomenon. Dr. Squires suggests that the extreme dilation of the pupils characteristic of the last stages of meningitis is largely mechanical and is due to pressure of the effusion on the centers at the base of the brain.

The Temperance Question in Europe.—The French, Russian and German nations are keenly alive to the dangers of alcoholic intemperance. The marked sensitiveness on this subject is not the result of fanaticism, but of facts brought to light by clinical investigation. These investigations have shown that national intemperance leads to national decay—directly by causing death through alcoholism, and indirectly, by causing physical mental decay of the offspring. None of the above-named nations can afford to face the numerical reduction of the respective populations, consequent on national intemperance in the use of alcohol. The political existence of all these countries is a matter of figures as applied to their respective populations. For this reason the governments of these countries have been actively concerned in the propaganda of popular temperance. Russia is trying to supplant the thirst for alcohol by opening tea-houses and soup houses for the poor; France is fighting her antialcoholic battle with lectures, both scientific and popular; Germany is intent on accomplishing the same aim by new and more drastic legal enactments.—*Journal of Mental Pathology.*

Uric Acid Diathesis.—Almost every layman, and a multitude of doctors continually speak of being "full of uric acid," meaning by this that they have muscular stiffness, or that the urine shows an excess of urates or even uric acid crystals. In the majority of instances this excessive deposit of urates or uric acid depends not on any abnormality in bodily metabolism, but on conditions of the urine which cause the precipitation or deposition of these solids. There is either a condition of acidity or a minimum quantity of mineral salts, and as a result precipitation takes place. For this so-called "uric acid diathesis" physicians prescribe large quantities of lithium and copious draughts of water. There can be no doubt that the water is advantageous, but the lithium only does good until a certain degree of alkalinity is reached, when it is of little value, and if the doses are large it acts as a depressant to the general system. It is quite true that persons who eat heartily, drink alcohol, and take no exercise, are not infrequently overloaded with effete materials representing imperfect metabolism, which cause disagreeable symptoms. It is also perfectly true that exercise, a proper diet, and the use of plenty of drinking water will overcome these symptoms, but this does not prove that the patient is a sufferer from "uric acid diathesis."—Hare's Text-book of the Practice of Medicine, 1905, p. 753.

Baths for the People.—The importance of frequent bathing to the health and comfort of the people is well recognized, and the establishment of the public baths of St. Paul a few years ago has done more to contribute to the happiness and welfare of an immense number of men, women and children than any other one thing in the history of this city. There are thousands who live in homes where there are no bathing facilities, and where water even in the small quantities necessary for washing the face and hands must be carried. It is time that public bath houses for the people should be established, which will be available every day in the year, baths whose actual bathing facilities shall be free.—*St. Paul Med. Jour.*

A New Method for Separation of the Urine by Massage.—Drs. Giordano and Nicolich of Triest have obtained the urine from the kidneys separately without the use of a ureteral catheter, says the *Medical Age.* (See also THE JOURNAL, XLII, page 1189.) Giordano observed during a nephrectomy that the urine in the manipulated kidney was pressed out, so that the first urine passed after the operation contained morbid products. Following this hint it occurred to him that the urine might be expressed for diagnostic purposes by massage. The bladder is first emptied, and then one of the kidneys and its ureter are massaged through the lumbar and abdominal regions. The resulting urine in the bladder is withdrawn, the bladder again carefully washed, and the same process applied to the remaining kidney. A number of diagnoses arrived at by this procedure were later confirmed by nephrectomy. The simplicity of this method will commend it to physicians owing to the fact that to catheterize a ureter, especially in the male, requires special skill, and it is a question of grave importance whether or not a catheter after passing through an infected bladder ought to be inserted into a healthy ureter.

Banquet Emotional Strain, Apoplexy and Cardiac Paralysis.—High cerebral vascular tension and the psychic emotional strain of the post-prandial speech have suddenly sealed the career of many meritorious and eminent men among us. The recent illness which fell on the Secretary of the Navy, Paul Morton, the stroke that ended the illustrious career of Daniel Manning of Mr. Cleveland's cabinet, are not yet forgotten illustrations of the dangers of high emotional strain after a full meal, as well as that of the historic and sudden death of the distinguished John Hunter, in the ward of his hospital while reprimanding a nurse for delinquency. The St. Louis *Star* looks on the after-dinner speech as a menace, and thinks the speaking should come first and the dinner follow. There is certainly wisdom in the suggestion. It undoubtedly would be wiser if the coffee and speaking preceded the wine, if the wine and brandy were not dispensed with altogether. A full meal after a flow of wit would direct blood from brain to stomach for digestion purposes, and help to hasten essential rest after the over-emotional excitation of those who are wont to set the table in a roar. A very light initial repast, if any, with coffee first, and later a full meal if desirable, would be more conservative of the brain of the spell binder banquet. The wise, habitual speaker would better adopt this plan of taking a light meal before "the meeting around the board" and turn down his glass till toward the close of "the feast of reason and the flow of soul," or never lift it. Medical men familiar with the phraseology and pathology of the reciprocal movement of brain and mind under psychic strain might wisely observe this as a sound physiologic rule in banquet speaking.—*Alienist and Neurologist.*

Medical Education in Japan.—Kakichi Mitsakuri states that the first western knowledge introduced into the Japanese empire was through a Dutch text-book of anatomy, which came into the hands of a Japanese physician about the year 1771. After years of study this physician and three of his friends published a good translation of this book. It had taught them that their former teaching had been wrong. On looking first at the illustrations in the book they dissected the body of a criminal in order to find out who was right, they or the teachings of the Dutch book. After the introduction of anatomy came chemistry, natural history, history, military tactics, etc. In 1868 the Imperial University was established. It had a four years' course, admitting 100 students to each course. In

the educational system of Japan there are three grades, the university, the professional school, and all the schools below that grade. The boy begins going to school at 6 years of age. In the high school one foreign language is studied, either English, French or German being generally taken. Those who plan to become physicians also take German, for that is the medical language of Japan. All physicians in Japan speak German and many of them write it. The arrangement of the course is based on that of the German schools and at one time all of the professors were German. Now they are all Japanese, except two honorary members of the faculty. The subjects studied in the medical college are similar to those studied in American colleges. Attached to the university is a hospital having about 400 beds. After the student receives his degree at the end of four years, he is allowed to practice without any further examination. But many students spend several more years at home and abroad in preparation for their life work. A number of easier schools have been established in Japan where students are allowed to go directly from high school. The Japanese language is used in these schools, but a very good class of physicians is turned out. The graduates of these professional schools are also allowed to practice without a state examination. There is a third class of students, who go through an irregular course of training. They are allowed to obtain a license by passing a state examination. The demand for physicians in Japan is not completely supplied, especially in the country districts, but this deficiency will be overcome in a few years.—*St. Louis Medical Review.*

Candidates for the Hall of Fame.—We have more than once referred to the Hall of Fame established by the University of New York and the fact that no physician's name appears therein. The *Western Medical Review* has taken up the matter in a business-like way and is securing statements of physicians as to the names of those that are considered most worthy of place in this hall. The *Review* has provided ballots and proposes to send the resulting petition to the council of the university with the hope of securing recognition for some of America's illustrious physicians. The following are the names suggested by the *Review* and its brief historical summary of each:

BENJAMIN RUSH.

1745—1815, Pennsylvania. Educated Princeton and Edinburgh. Professor chemistry Med. Coll., Phila. (1769). Author of essays on "Slavery," "Temperance," *etc.* (1771); oration "Medicine and North American Indians" (1774); member Continental Congress and signer of Declaration of Independence (1776); physician to Port of Philadelphia (1790-1793); wrote "Medical Inquiries," 5 vols. (1789-98); Treasurer U. S. Mint (1799); wrote "Diseases of the Mind" (1812).

J. MARION SIMS.

1813—1883, Alabama. Conceived and performed the first operation (1845) for the cure of vesico-vaginal fistula. Invented the Sims speculum (1852) which is still in use. Performed his operation with the greatest eclat in all the capitals of Europe. Founder (1855) of great Woman's Hospital in New York City. Granted LL.D. (1881) by Univ. of Penna.

VALENTINE MOTT.

1785—1865, New York. In many respects the greatest surgeon this country ever produced. The first (1818) to tie the innominate artery and did more surgery on the large blood vessels than any other man who has ever lived. First to extirpate the clavicle for tumor. Translated Velpeau's "Operative Surgery," a large and very valuable work.

JOHN COLLINS WARREN.

1778—1856, Massachusetts. First professor anatomy and surgery in Harvard. Patron of first administration of ether for a surgical operation. Founder of the *Boston Medical and Surgical Journal.*

DAVID RAMSAY.

1749—1815, South Carolina. Benjamin Rush said of him: "I never saw so much strength of memory and imagination united to so fine a judgment." Delegate to the Continental Congress (1776); wrote "History of the Revolution in South Carolina" (1785); "History of the American Revolution" (1789); "Life of Washington" (1807); "History of the United States" (1816-19).

WILLIAM T. G. MORTON.

1819—1868, Massachusetts. On Oct. 16, 1846, first administered ether to a surgical patient in the Massachusetts General Hospital, Boston. He devoted the remainder of his life to extending the influence of his wonderful discovery. French Academy of Sciences in 1852 investigated various claims to the discovery and awarded Dr. Morton 2,500 francs for having discovered the application of etherization to surgery.

OLIVER WENDELL HOLMES.

1809—1894, Massachusetts. Professor of anatomy, Harvard Medical School (1847-1882). First to call attention to the contagious character of puerperal fever. Coined the terms "anesthetic" and "anesthesia." Best known, however and most loved for his poems and prose writings, which are too numerous to mention here. "Medical Essays," "Currents and Counter Currents," "Autocrat of the Breakfast Table," "The Chambered Nautilus," are best known.

We congratulate the *Western Medical Review* on its enterprise and we urge each of our readers to co-operate by sending to the *Review*, at Lincoln, Neb., a postal card, indicating four names selected from the above list. It has been suggested that four names is not too large a number to ask places for, but not more than four should be mentioned.

Opinion of Professor Lorenz on Damage Suits.—Two years ago a damage suit was brought against Professor Adolph Lorenz of Vienna on account of the serious aggravation of the condition of a patient following an examination under an anesthetic. Prof. Lorenz told the patient and the family physician that the examination would be harmless and free from danger, and, as it was followed by general aggravation of the symptoms, a suit for damages followed, which Prof. Lorenz compromised for a considerable amount. In two other cases suits have been threatened. In one case he refused to operate because he thought that the patient was looking for an opportunity to bring a damage suit. He was held pecuniarily responsible nevertheless and had to pay for the patient's lost time and for the rent of the house he had taken when expecting to be operated on. In an article on this subject in the *Wiener klin.-therap. Wochft.* xii, Nos. 5-7, 1905, Lorenz states that whether the physician loses or wins his suit, the mere fact that he has been sued injures his professional reputation. Lorenz believes that there are persons who make a business of laying traps for the unwary surgeon and then bringing damage suits, and the whole trouble, he believes, is due to the excessive responsibility placed on the surgeon. The patient is likely to have overconfidence in the surgeon which is expressed by exaggerated praises when the operation is successful and by bitter denunciation when the results are unsatisfactory. Lorenz suggests as a remedy for this that the patient should be taught what he can demand of the surgeon, and that the surgeon should learn what he can safely promise the patient. When a patient places himself in the hands of a physician he passively assumes that he is justified in expecting a cure of his trouble, or at least an improvement, and he recognizes, as an obligation imposed on him, the necessity for obedience to the physician's directions, so long as they do not appear to be too rigorous. He may possibly have a vague consciousness that the obligation assumed by the physician requires material remuneration and that this remuneration ought to be as large as he is able to pay, but when the time for payment arrives he usually finds that the smallest possible remuneration will amply suffice to satisfy his sense of obligation. If, however, instead of the expected improvement or cure, the condition is aggravated and transient or permanent injury results, the patient generally considers that the physician is under obligation to indemnify him for the resulting injury. The physician recognizes as a matter of course that his duty is to serve the patient according to his best knowledge, and he is apt to assure the patient that any contemplated operation is free from danger, and often holds out the prospect of improvement or of cure. In order to earn an uncertain and generally very modest honorarium the physician summons all his knowledge and skill and in many cases risks his health and even life itself, besides exposing himself to the danger of financial ruin. The patient looks on his contract with the physician as a business contract; the pay depends on the amount of work done; poor work annuls the contract; no work entitles the first party to damages. The patient has all the rights and the physician all the obligations. The Austrian medical chambers are striving to introduce the regulation that the legal authorities shall submit to them applications for damage suits against physicians before they are allowed to be entered as suits. They claim that the reputation of the physician is such that the slightest breath tarnishes it and that the legal authorities should allow suits against physicians only on the basis of negligence, malicious intention or criminal error. When it is necessary to tranquillize a patient before a necessary operation by telling him that it is free from

danger, some member of the family should always be informed of the true state of the case. When the indication for the operation is not vital the surgeon should bear in mind that no operation is absolutely free from danger. Patients should be taught that even the slightest surgical intervention has a certain amount of risk. Lorenz believes that it should be distinctly understood that the patient has absolutely no right to demand anything more of the physician than to be treated according to his best knowledge and conscience and that the physician has no further obligation than to do this.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

REGULATIONS GOVERNING PRACTICE OF MEDICINE IN AUSTRIA.

ST. LOUIS, March 29, 1905.

To the Editor:—Can you give me any information regarding the laws governing the practice of medicine in Austria? Can a graduate of a U. S. medical college go there and practice or must he pass an examination? What are the educational requirements? A. TRAUBITZ.

ANSWER:—It is necessary to pass a state examination or to obtain a university degree in medicine, a necessary preliminary to which is naturalization as an Austrian subject. Recognition of foreign diplomas may be obtained on passing certain examinations. Further information may be obtained by writing to the Anglo-American Medical Association, Vienna, Austria.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, for the two weeks ending April 1, 1905:

Turnbull, Wilfrid, asst.-surgeon, honorably discharged from the service of the United States, under the provisions of the act of Congress approved Oct. 1, 1890, as amended by act approved July 27, 1892, to take effect March 17, 1905.

McCulloch, C. C., Jr., surgeon, granted thirty days' leave of absence.

Mearns, E. A., surgeon, granted three months' sick leave of absence.

Davis, Wm. R., Owen, Leartus J., Zinke, Stanley G., Culler, Robert M., Weed, Frank W., Wickline, Wm. A., Brown, Henry L., Baily, Howard H., Humphreys, H. G., and Freeman, Paul L., asst.-surgeons, ordered on completion of course of instruction at Army Medical School, to Manila, P. I., for duty in the Philippines Division.

Winn, Robert N., asst.-surgeon, granted three months' leave of absence about June 1.

Hall, John D., asst.-surgeon-general, assigned to duty as chief surgeon, Department of California.

Bartlett, C. J., asst.-surgeon, leave of absence extended twenty days.

Rafferty, Ogden, surgeon, ordered to proceed to the Artillery posts in District of the Potomac and Baltimore, with a view to determine the requirements of medical department at each station participating in Army and Navy exercises from June 11 to 17, 1905.

Wing, Franklin F., dental surgeon, arrived at Fort Robinson, Nebr., from leave of absence.

Oliver, Robert T., examining and supervising dental surgeon, ordered from West Point, N. Y., to New York City, on business connected with the purchase of dental supplies for the Army.

Waddell, Ralph W., dental surgeon, ordered from Fort Leavenworth, Kans., to Fort Crook, Nebr., for temporary duty.

Stone, Frank P., dental surgeon, granted leave of absence for three months.

Ware, William H., dental surgeon, left Fort Apache, Ariz., for Whipple Barracks, Ariz.

Rebert, Michael A., contract surgeon, returned to Fort Totten, N. Y., from leave of absence.

Wythe, Stephen, contract surgeon, arrived at Presidio of San Francisco, Cal., for temporary duty.

Wells, George M., surgeon, ordered to proceed from San Francisco to Hot Springs, Ark., and report to commanding officer, Army and Navy General Hospital, for treatment therein.

Munson, E. L., asst.-surgeon, granted ten days' leave of absence with permission to apply for thirty days' extension.

Thomason, H. D., asst.-surgeon, advanced to rank of captain.

Bartlett, Cosam J., asst.-surgeon, relieved from duty at Army and Navy General Hospital, Hot Springs, Ark., and assigned to duty at Fort Miley, Cal.

Shortlidge, E. D., asst.-surgeon, relieved from duty at Fort Miley, Cal., and ordered to Army and Navy General Hospital, Hot Springs, Ark.

Shellenberger, James E., contract surgeon, arrived at his proper station, Fort Sam Houston, Texas, from temporary duty at Jackson Barracks, La.

Klerulff, H. Newton, contract surgeon, relieved from duty at the Infantry Cantonment, Presidio of San Francisco, and reported for duty as transport surgeon of the *Buford*.

Probert, Merton A., contract surgeon, ordered to accompany First Battalion, Thirtieth Infantry, on march from Fort Crook, Neb., to Fort Des Moines, Iowa, and then return by rail.

Byars, Caspar R., contract surgeon, ordered from Bay City, Texas, to Fort Sam Houston, Texas, for duty.

Cole, R. King, contract surgeon, granted leave of absence for two months.

Whinnery, Jean C., dental surgeon, left Fort Wright, Wash., for his proper station, Vancouver Barracks, Wash.

Public Health and Marine-Hospital Service.

List of the changes of stations and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending March 29, 1905:

Williams, L. L., asst.-surgeon general, relieved from duty in the Bureau, and directed to proceed to Baltimore, Md., and assume command of the service, relieving P. A. Surgeon C. W. Wille.

Bailbache, Preston H., surgeon, reassigned to duty at Stapleton, N. Y., effective March 8.

Stoner, G. W., surgeon, reassigned to duty in the Immigration Service, Ellis Island, N. Y., effective March 8.

Stoner, J. B., surgeon, relieved from duty at Norfolk, Va., and directed to proceed to Evansville, Ind., and assume command of the service, relieving P. A. Surgeon B. W. Brown.

Young, G. B., P. A. surgeon, on being relieved by P. A. Surgeon B. W. Brown, to proceed to Chicago, Ill., and assume command of the service.

Brown, B. W., P. A. surgeon, on being relieved by Surgeon J. B. Stoner, to proceed to Louisville, Ky., and assume command of the service, relieving P. A. Surgeon G. B. Young.

Eager, J. M., P. A. surgeon, on being relieved by Assistant Surgeon A. J. McLaughlin, to proceed to Washington, D. C., and report at the Bureau for duty.

Blue, Rupert, P. A. surgeon, relieved from duty at the Plague Laboratory, San Francisco, Cal., and directed to proceed to Norfolk, Va., and assume command of the service.

Cofer, L. E., P. A. surgeon, reassigned as chief quarantine officer of the Territory of Hawaii, effective Dec. 1, 1904.

Grubbs, S. B., P. A. surgeon, on being relieved by P. A. Surgeon C. W. Wille, to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters.

Foster, M. H., P. A. surgeon, detailed as inspector of unserviceable property at San Diego Quarantine Station.

Lumsden, L. L., P. A. surgeon, to proceed to Perth Amboy, N. J., for duty during absence of P. A. Surgeon W. A. Korn.

Corput, G. N., P. A. surgeon, on being relieved by P. A. Surgeon M. K. Gwyn, to proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters.

King, W. W., P. A. surgeon, one day's leave of absence, March 18, 1905, under Paragraph 189 of the Regulations.

Gwyn, M. K., P. A. surgeon, on expiration of leave of absence, to proceed to South Atlantic Quarantine Station and assume command of the service, relieving P. A. Surgeon G. M. Corput.

Currie, D. H., P. A. surgeon, directed to assume temporary charge of the Plague Laboratory, San Francisco, Cal.

Korn, W. A., P. A. surgeon, granted leave of absence for seven days from March 29.

Wille, C. W., P. A. surgeon, on being relieved by Surgeon L. L. Williams to proceed to Gulf Quarantine Station and assume command of the service, relieving P. A. Surgeon S. B. Grubbs.

McLaughlin, A. J., asst.-surgeon, relieved from duty in the Bureau, and directed to proceed to Naples, Italy, for duty in the office of the American consul, relieving P. A. Surgeon J. M. Eager.

McLarty, A. A., acting asst.-surgeon, granted leave of absence for thirty days from April 1.

McKay, Malcolm, pharmacist, to report April 3, 1905, to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class.

Herty, F. J., pharmacist, granted leave of absence for four days from March 8, 1905, on account of sickness.

BOARD CONVENED.

Board convened to meet at Chelsea, Mass., April 3, 1905, for the physical examination of Pharmacist Malcolm McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon R. M. Woodward, chairman; Acting Assistant Surgeon F. H. Cleaves, recorder.

Medical Organization

SOME FACTS REGARDING ORGANIZATION.

The Medical Association of Georgia will act on the matter of reorganization at its next annual meeting, which is to be held at Atlanta, April 19. At the last meeting a committee was appointed to report at the coming meeting, and it has just issued a circular preliminary to its report bearing on the matter. From this we quote:

"Desiring to place before the members of the association as much information as possible bearing on the results of reorganization in other states, your committee wrote to the officers of a number of associations asking that they would give conditions existing in their states before and since the adoption of the constitution suggested by the American Medical Association.

"Prompt replies were received in every instance and the following facts are taken from the letters of either the secretary or the president of the associations of the states named.

"In Kentucky, prior to the adoption of the new constitution, there were about 400 members in the state association, with less than 100 members usually attending an annual meeting. At the present time, two years after the adoption of the proposed constitution, there are 1,600 paid-up members, a large increase in the attendance on meetings and a general awakening of the profession at large.

"In Michigan, prior to 1902, the state membership had never exceeded 500; last year it was 1,800 paid-up members. Formerly only eleven counties in the state had any kind of medical society; now every county in the state is organized and working in harmony with the state body.

"In Tennessee, prior to the adoption of the new constitution, the membership had at no time been greater than 400; now it has passed 1,200; dues formerly collected had rarely been $700; last year it was over $2,000, while the quantity and character of scientific work done has been much improved.

"In Indiana, while the proposed plan was already virtually in existence, the state being organized on the basis of the county unit, still the membership increased 25 per cent. the first year, and a number of unorganized counties at once formed societies and sent delegates to the state association. No move in the state has ever given such promise of bringing all the medical men into societies for their scientific and social advancement.

"In Nebraska the membership increased the first year from 275 to about 800, and the sentiment is heartily in favor of the change.

"In Louisiana the new constitution was adopted in 1903, and reports a considerable increase in membership and a corresponding interest in scientific work. The president expresses satisfaction with the plan and writes that it is working well.

"Illinois reports that membership in the state association has increased fourfold, that there are now between 4,000 and 5,000 members in the association, or about 60 per cent. of the regular physicians in the state, with a live working unit in every county. Interest in medical matters has increased correspondingly and the rank and file of the profession are more than pleased with the change.

"Arkansas writes that in one year the membership of the association went from 150 to 700, and that the plan has given general satisfaction.

"Wisconsin had in 1903 in her state association 700 members, and there were ten feeble county societies in the state. The following year, after adopting the new constitution, the membership increased to 1,300, while every county in the state became organized and now have live working societies. At the meeting of 1904 there were 100 more members in attendance than at any previous meeting within the history of the association.

"In the neighboring state of Florida the president, Dr. Pierpont, writes in the most enthusiastic manner. He states that the membership has increased from 172 to 243, but it is especially in connection with the work of the county societies that he speaks most enthusiastically. Here he says the results have been most gratifying.

"Dr. Chase of Fort Worth, the secretary of the Texas State Medical Association, writes that prior to reorganization, or in April, 1903, there were 445 members, only about 10 per cent. of the regular practitioners, while the collections from all sources amounted to $1,815. In April, 1904, or one year later, the membership was 2,393, while the treasurer reported collections amounting to $5,986. Thus you see the increase was fivefold the first year, and the association now has enrolled on its list over half of the legalized practitioners of the state. This in a state 1,000 miles square. Dr. Chase goes on to say that there has never been any five-year period in the history of the state in which there has been so great an increase in good feeling among the profession, or in which more irregular practitioners have been forced out of practice or in which so much political influence for good has been exerted.

"From North Carolina we have letters from both the president and the secretary of the association. The president, Dr. Tayloe, says: 'Our medical society, now running under the plan suggested by the American Medical Association, has met with the universal approval of 99 per cent. of the doctors of our state. It has more than doubled the membership, put twice the money in the treasury and worked a success thus far in every particular.' The secretary, Dr. Way, of Waynesville, whom some of you may know, a fine fellow, says: 'I beg leave to say to you most emphatically, reorganize and do it now!' He then goes on to say that the membership increased in one year from 283 to 1,065 paid members, that 90 out of 97 counties have organized, and that owing to thorough organization, they had no trouble whatever in killing before the state legislature, a bill designed to recognize osteopaths.

"F. W. McRAE,
"Chairman Committee on New Constitution."

A Press Committee.

One of the objects of organization is the "directing of public opinion in regard to the broad problems of hygiene." Several county societies have already recognized this as part of their functions and are acting accordingly. One of the latest to take up this work is the Washington County (Iowa) Medical Society. Recently a press committee was appointed, with instructions to represent the profession of the county to the press. It was authorized to prepare authoritative papers on public health, sanitary science and medical ethics, and in every way possible to educate the public in regard to the broad problems of hygiene and public health. We are informed that the committee has outlined subjects which will take over a year to complete. Each week the committee publishes a short article in the local papers, and judging from the reprints of two of these, the committee is judicious, not only in the choice of subjects considered, but in the manner of presenting them. The newspapers are willingly co-operating, and seem to be glad to publish the matter presented. No names are used, each article being signed by the press committee of the Washington County Medical Society. We commend the idea to other county societies.

Kansas.

Dr. O. J. Furst, councilor of the Fourth District, organized the Sumner County Medical Society on March 29, with 24 members. The officers are: President, S. T. Shelley, Mulvane; vice president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Holliday, and censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler.

Missouri.

The physicians of Jefferson County met at De Soto on Saturday, April 1, 1905, and after listening to a talk from Dr. J. A. McCormack, organized a county society and adopted the standard Constitution and By-laws. The following officers were elected: President, W. H. Farrar, De Soto; vice president, J. W. Pickel, Festus; secretary and treasurer, H. W. Elders, De Soto; board of censors, C. G. Harris, W. E. Gibson and A. H. Hamel, De Soto; delegate to the state association, A. H. Hamel, De Soto. A number of physicians were present from adjacent counties and societies will be organized in some of these at an early day.

Tennessee.

TENNESSEE STATE MEDICAL ASSOCIATION.—The seventy-second annual meeting will be held in Watkins Institute building, Sixth Avenue and Church Street, Nashville, Tenn., April 11-13. The House of Delegates will be called to order at 8 a. m., Tuesday, April 11, while the general session will be opened at 10 a. m. at a meeting opened to the general public, at which appropriate addresses will be delivered. The president, Dr. Paul F. Eve, Nashville, will deliver the annual address at the evening session of the first day. A program of thirty-two papers on various topics will be given during the three days of the general session. The feature of the second evening will be a discussion on the "Prophylaxis of Tuberculosis," participated in by members of the medical, legal and clerical professions, state and municipal officials, editors and representatives of business and railroad corporations. A rate of one and one-third fare has been secured and a large attendance is expected.

Society Proceedings

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Portland, Ore., July 11-14, 1905.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychological Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.

Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

FIFTEENTH INTERNATIONAL MEDICAL CONGRESS.

To be held in Lisbon, Portugal, April 19-26, 1906.

Announcement of American Committee.

NEW YORK CITY, March 30, 1905.

To the Editor:—The Fifteenth International Medical Congress will be held at Lisbon in April, 1906. At a meeting of the national American committee, held at St Louis last September, the following physicians were appointed to represent the congress:

John H. Musser, Chairman.
Ramon Guiteras, Secretary.
Dudley P. Allen.
C. S. Bull.
E. C. Burnett.
E. G. Brackett.
H. E. Bell.
Frank Billings.
Herman M. Biggs.
Herbert L. Borell.
T. J. W. Burgess.
Wm. T. Corlett.
William T. Councilman.
Wm. H. Carmalt.
Richard C. Cabot.
Charles H. Dana.
N. S. Davis, Jr.
E. C. Dudley.
Simon Flexner.
Chas. H. Frazier.
R. H. Fitz.
W. E. Fischel.
C. M. Green.
Chas. Lyman Greene.
H. A. Hare.
L. Hektoen.
W. H. Howell.
Edward Jackson.
E. G. Janeway.
A. Jacobi.
C. G. Jennings.
George R. Johnson.
W. W. Keen.
Howard A. Kelly.
Chas. Kollock.
L. S. McMurtry.
James H. McBride.
A. T. McCormack.
K. A. McKenzie.
J. B. Murphy.
R. Matas.
Chas. S. Minot.
Robt. M. O'Reilly.
William Osler.
Chas. Powers.
W. F. R. Phillips.
B. Alexander Randall.
J. B. Roberts.
W. L. Rodman.
M. H. Richardson.
C. C. Rice.
Chas. A. L. Reed.
Presley M. Rixey.
H. M. Sherman.
Fred'k C. Shattuck.
Geo. H. Simmons.
Wm. G. Spiller.
Chas. G. Stockton.
Geo. Sternberg.
E. L. Trudeau.
Victor A. Vaughan.
John A. Witherspoon.
J. Collins Warren.
J. C. Webster.
Wm. H. Welch.
John A. Wyeth.
Horatio C. Wood.
Walter Wyman.

The executive committee appointed from this group consisted of Dr. J. H. Musser, chairman, and Drs. Frank Billings, William Osler, Frederick Shattuck and Abram Jacobi.

Any communications regarding the presentation of papers at this congress can be sent to Miguel Bombarda, secretary, at Lisbon; or to Dr. Ramon Guiteras, secretary for this country.

76 West Fifty-fifth Street. RAMON GUITERAS.

AMERICAN SOCIETY OF TROPICAL MEDICINE.

Second Annual Meeting, held in Philadelphia, March 24, 1905.

The President, DR. THOMAS H. FENTON, in the Chair.

This second annual meeting was held in the College of Physicians at 8 p. m. Thirty-six new members were received.

The minutes of the council meetings and lists of contributions to the society's collections of literature and specimens were read by the secretaries.

Program on Panama.

Dr. Seneca Egbert read a paper on "Panama and the Panama Canal."

Dr. Joseph McFarland gave a description of the canal zone, with lantern demonstration.

Dr. Roland G. Curtin read a paper on "Impressions of Panama and the Pan-American Medical Congress."

The discussion was participated in by Drs. Stout, Thorington, Daland and others.

Public School Instruction in Hygiene in Tropical Colonies.

Acting on the advice of Sir Patrick Manson, it was decided to send to the proper authorities a resolution recommending that the curriculum of public school instruction in the tropical Colonial possessions of the United States, be made to include the general facts pertaining to the prophylaxis of tropical diseases.

Sanitation at Panama.

Resolutions were also adopted, calling the attention of the President of the United States to the inadequate sanitary arrangements now existing on the Isthmus of Panama, and urging that he use his influence in order that they be improved before the engineering work on a large scale begins.

Election of Officers.

The following officers were elected for the ensuing year: President, Dr. Roland G. Curtin; vice-presidents, Drs. Victor C. Vaughan and W. S. Thayer; treasurer, Dr. Wharton Sinkler; secretary, Dr. Joseph McFarland; assistant secretary, Dr. John M. Swan; council, Drs. Thomas H. Fenton, James M. Anders, Judson Daland, Ramon Guiteras, and B. F. Stahl.

(To be continued.)

BOSTON MEDICAL LIBRARY MEETING.

Meeting held March 8, 1905.

DR. GEORGE W. GAY in the Chair.

Nine Years' Experience in the Treatment of Diphtheria with Antitoxin.

DR. JOHN H. MCCOLLOM said that it is important to have a bacteriologic examination of all cases of sore throat. Twice during the past year epidemics in institutions in Boston have been checked by systematic taking of cultures. Often, however, diagnosis may be made from clinical appearances. In such cases do not wait for report from culture. Thus with negative cultures patient may cough up casts. Study the dyspnea. If characterized by rigidity of the sterno-cleido-mastoid muscles, supraclavicular and substernal retraction, treat it as diphtheria. Cultures from the intubation tubes are invariably positive in such cases. In 1894 the mortality from diphtheria in Boston was 18 per 10,000 of population. In 1904, under the use of antitoxin, it fell to 3.35. In 1888 it was the cause of 0.13 per cent. of all the deaths in the city, while in 1904 it was responsible for only 0.03 per cent. On the other hand, the cases received at the South Department of the Boston City Hospital in 1888 were but 0.08 per cent. of the population, while in 1904 they were 0.18 per cent., or 56 per cent. of all the cases in the city. The mortality from diphtheria in 1888 was 45 per cent. of all persons attacked; in 1904, 9.5 per cent. Mortality from intubations in 1888 was 76 per cent.; in 1904, 30 per cent. Of the intubations under 2 years old, 64 per cent. were fatal; 2 to 2½ years, 50 per cent.; 2½ to 3½, 39 per cent.; 3½ to 4½, 37 per cent.; 4½ to 5½, 36 per cent.; over 5½, 34 per cent.

Antitoxin gives relief in laryngeal diphtheria if given early; 4,000, 6,000 or 8,000 units will often give relief within twenty-four hours. In operative cases it prevents the extension of the membrane. When there is evidence of extension to the bronchi, give 20,000, 30,000 or 40,000 units. The bronchopneumonia, so generaly fatal and nine years ago responsible for 17 per cent. of the deaths, may then be averted. Intubation is the approved operation. It is better than tracheotomy. Inhalation pneumonia is not probable. The value of antitoxin in the operative cases is shown by the fact that of 327 tracheotomies reported from 1864 to 1887, from 70 to 95 per cent. died. During the last nine years intubation has been done 1,553 times, with 44 per cent. mortality. During the past nine years there have been 180 cases among the doctors, nurses and other employes of the South Department, with no fatality.

Give the full amount, from 4,000 to 8,000 units, every six or eight hours. Repeat till there is decided improvement in the looks of the throat and the general symptoms. Few cases are really hopeless. Many die because not enough is given, from nerve degeneration or sepsis. No instance of injury has ever been noted at the hospital. Albuminuria is no more common. Heart complications and paralysis are less common. Urticaria and arthralgia, which may come on any time from ten minutes after the injection to five weeks, are, at the most only uncomfortable. An abscess always indicates an error in the technic of administration or in the preparation of the serum. Immunization is especially useful in case of hospitals and scarlet fever patients.

The Present State of Opinion Concerning Sewer Gas and Its Effects.

PROF. WILLIAM T. SEDGWICK said the sewer gas theory so much favored thirty years ago is exploded. The fall of the theory came with the application of common sense. Definite disease germs were discovered. These are not common in sewers; indeed, the air there is very good, chemically and bacteriologically nearly sterile. Neither do germs thrive in sewage. So great is the change that the house trap is being called superfluous. Polluted air of any kind is deleterious to the human system. It lessens the vital resistance.

DISCUSSION.

DR. DAVID CHEEVER told of the changes he had noted in regard to diphtheria. Dr. John Ware, author of "Membranous Croup," was his professor. Diphtheria was in those days a horror, nearly always fatal. Remedies were harsh and unavailing. Antimony and mercury till salivation were lauded. Powerful emetics like sulphate of zinc added to the patient's distress. Tracheotomy was rarely done, and the doctor was forced to watch slow strangulation. Later inhalations of steam were thought absolutely necessary for all such operative cases. The late Dr. Gay reported a series of cases of tracheotomies of which only 66 per cent. died when no other man had saved more than 25 per cent. At first ether was used for an anesthetic, then chloroform and more recently nothing at all. Intubation has gradually supplanted tracheotomy and is best if done by experts. Yet when a case can not be constantly watched tracheotomy still fills a place. Antitoxin has changed our attitude toward diphtheria almost completely.

DR. THOMAS M. ROTCH spoke of the value of immunizing doses in preventing the outbreaks of diphtheria in institutions. At the Boston Children's Hospital it has been done 9,696 times. There has been no harm, no nephritis and but a single case of diphtheria. This last was in a boy who failed to get his second dose of serum at the end of twenty-one days, which is the rule. Nurses do have it and are not immunized. Children do not have it. Five hundred units is the dose, repeated every twenty-one days. All kinds of eruptions have been noted, resembling measles, scarlet fever and other erythemas, but not varicella. No arthralgia, and not as much pain as from vaccination. The Infants' Hospital also formerly had epidemics of diphtheria. Since February, 1900, all babies admitted, 1,184, have received their immunizing dose of antitoxin. Most of these babies are under 1 year old. There has been one case of diphtheria in a child who only received 300 units. Since then 500 units has been the rule. As at the Children's Hospital, there have been controls in the nurses who do not have immunizing doses and who do have diphtheria occasionally. Dr. Rotch makes it a practice of thus immunizing every member of families where there is a case of diphtheria.

DR. F. H. WILLIAMS has three rules: Get good antitoxin, give it early, give enough.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held March 7, 1905.

The President, DR. JOSEPH FRAENKEL, in the Chair.

A Case for Diagnosis.

DR. SMITH ELY JELLIFFE presented this patient, a woman, 33 years old, and a dressmaker by occupation. She had seven sisters and one brother alive and in good health. One sister had died of consumption. Her father, aged 65, is a hemiplegic. Her mother, aged 70, is in good health. The patient had had scarlet fever at 7 years of age. Following this attack she was weak for a long time and would fall easily. There was no history of hemiplegia at this time. Later she had diseases of childhood and diphtheria. She had an attack of jaundice when she was 22 years old and malaria six years ago. Menstruation began when she was about 14, and was regular, lasting two days. Some years ago she had an attack of sciatica, and gave a history of painful swellings in the axillæ, elbows and knees, probably due to some lymphatic infection. When she was 18 she fell, striking the back of her head, resulting for a time in severe headaches. Her present illness began two years ago, and its onset was gradual. She first felt pain in the little finger of the left hand, was burning in character, and running up and into the shoulder along the course of the sterno-cleido-mastoid to behind the ear. The hand began to shake and to grow weaker. The pain had lasted two weeks before the tremor and weakness became apparent. The tremor at first was very pronounced. About a year later she noticed a loss of power in the left leg, with stiffness and drawing up of the muscles and with some pain in the knee. During the past summer the pain was referred to the ankle. She compained of frequent attacks of diarrhea, with colic. There were no bladder symptoms. Examination of the eyes showed slight diplopia and nystagmus, but no impairment of sight. There was slight inequality of the pupils, but no Argyll-Robertson pupil. Consensual light reflex was normal, and the skin reflexes were normal. There were no pains, no anesthesia, no disturbance of heat and cold sensation, no Romberg sign. There was slight tremor of the head at times. Musculature good. There was weakness and stiffness of the entire left side, more marked in the upper than in the lower extremity. The reflexes were increased on the left side. There was no Babinski sign, no clonus, no tremor of leg. The tremor of the arm was coarse, of the semi-intentional type, but not typical. The heart sounds were exaggerated, but there was no murmur. The legs dragged and there was marked stiffness and rigidity. There were no electrical changes and no atrophy. The patient claimed that her memory was not so good as formerly, especially for recent events; otherwise no change was noted. Her friends state that she is more irritable than formerly, but this is, perhaps, natural, as the tremor of the hand prevented her from carrying on her business as a dressmaker. Dr. Jelliffe said that the symptoms were suggestive of a multiple sclerosis.

DISCUSSION.

DR. L. PIERCE CLARK, who had had the patient under observation for several months at the Vanderbilt Clinic, agreed with Dr. Jelliffe that the case was one of multiple sclerosis, slowly progressive, and probably of the cerebral type, and that there were some of the evidences of involvement of the spinal cord.

A Case of Myotonia Congenita.

DR. GRAEME M. HAMMOND presented this patient, a girl of 16, the youngest of three children. The other children were boys. One of them, aged 18, died suddenly of heart disease. The child's parents were cousins. There was no other case of myotonia on either side of the family for three generations; beyond that nothing was known of the ancestors. The patient began to walk when she was 10 months old. With the exception of measles in childhood, she had always been well and healthy. When she was about 2 years old her mother noticed that after sitting a while, the child had great difficulty in getting up and walking. She arose slowly, on account of great stiffness in the muscles, and often fell. On attempting to walk she at first found it impossible to move, so rigid were her legs. Finally she would move one leg stiffly, then the other, and began to walk with stiff, mechanical movements like "a nursery doll." The more she walked, the more limber she became, and in a few minutes walking became easy and natural, and she could even run and dance. This condition had persisted all her life. The patient menstruated for the first time in March, 1904; then not again until September, 1904, and since that time not at all. Her body and arms were rather small, but the legs and thighs were very large. The knee-jerks, after sitting a while, were present and responded quickly, but the movement was short. After walking, when the legs were quite limber, the knee-jerks were normal. Both calves measured 14¼ inches; the thighs (seven inches above the patella), 20¼ inches. The legs were 33 inches long. The muscles of the arms reacted normally to both forms of the electrical current. The legs seemed to respond normally to faradism. When galvanism was used the muscles responded sharply and deeply, then immediately relaxed; then a second

contraction ensued which was not so well marked as the first. The muscle, when it contracted, did so with a wavelike or vermicular movement. The same muscular tone was observed after standing or lying down. The most difficult time the patient had was on attempting to rise in the morning.

DISCUSSION.

DR. G. L. WALTON, Boston, spoke of the liability of these cases to be mistaken for hysteria, on account of the apparently meaningless transition from clumsiness to agility. Continuous observation of these patients showed an unvarying adherence to fixed rules referable to disturbance of the neuro-muscular mechanism and independently of the mind. Dr. Walton also referred to a symptom that was present in two typical cases of myotonia congenita that had been under his observation, namely, the slow and clumsy ascent of stairs, followed by an active and nimble descent. This trial was then made on Dr. Hammond's patient, with the same result.

A Case of Progressive Muscular Atrophy of the Left Hand.

DR. EDWARD D. FISHER presented this patient, a young woman whose occupation was that of a machine worker. Her work was passing articles along under a machine, the left hand being engaged more than the right. Her family history and past history were negative, with the exception of the fact that when she was about 10 years old she complained of pain in the upper arms, between the shoulder and elbow, when carrying her school-books. About two years ago she began to notice some weakness in the left hand and a tendency to stiffness, especially when playing the piano. This was followed by wasting of the muscles, which appeared to be typical of progressive muscular atrophy. One peculiarity of the case was the extreme icy coldness of the hands in spite of efforts to keep them warm. The electrical reactions were impaired. There were no sensory disturbances, no symptoms pointing to syringomyelia and no scoliosis. The atrophy was gradually extending up the forearm.

Two Cases of Nerve Anastomosis.

DR. ALFRED S. TAYLOR presented two cases. The first patient, a boy, 8 years old, three years ago had an attack of anterior poliomyelitis which involved the right hand and forearm. The hand was entirely useless, but as the muscles of the shoulder and upper arm were in fairly good condition, the case was regarded as a suitable one for nerve anastomosis. A few days ago the brachial plexus was exposed and the seventh and eighth cervical and first dorsal roots were divided, turned up and inserted by lateral anastomosis into the junction of the fifth and sixth nerves. The anastomosis was effected without any tension on the nerves. The wound was then closed and the parts immobilized. The dressings were still in place and the ultimate outcome of the operation, so far as improvement of function was concerned, was doubtful.

The second patient was a boy, about 8 years old, who in the early summer of 1903 had scarlet fever, followed by otitis media and mastoiditis, for which he was operated on at the Randall's Island Hospital. Three days after the operation a facial palsy appeared, and rapidly progressed to complete paralysis. Three and one-half months later complete reaction of degeneration was found. A facio-hypoglossal anastomosis was done under chloroform anesthesia; the facial nerve was found to be soft and friable and gray in appearance. Only one suture could be made to hold to the hypoglossal, which was under such tension that a fine suture was passed through the hypoglossal sheath to anchor the nerve to the neighboring fascia, and to prevent tension on the anastomosis. Primary union was obtained. There was almost complete palsy of the muscles supplied by the hypoglossal immediately after the operation. Ten weeks after the operation some difficulty of speech remained, owing to imperfect use of the tongue. Difficulty in swallowing and mastication, and unilateral furring of the tongue, all of which were present for some weeks after the operation, and which were due to operative injury of the twelfth nerve, disappeared. Three months after the operation the face was far less asymmetrical than before and the eye could be partly closed. Reaction of degeneration was unchanged. At the end of eight months there was slight motion about the right side of the mouth; this improvement slowly continued, and fourteen months after the operation the patient had a fair amount of control over the formerly paralyzed side of the face.

DISCUSSION.

DR. B. SACHS stated that three and one-half months was rather too soon to consider an operation in a case of facial palsy, as in many of these patients improvement began after a much longer period.

DR. HAMMOND said that he did not think the return of power in the paralyzed muscles proved that the anastomosis had been successful. He mentioned the case of a boy who developed a facial palsy after a mastoid operation, and without any attempt at anastomosis motion in the affected muscles was first noticed at the end of fifteen months, and eventually was absolutely restored.

DR. LESZYNSKY said that he had seen a great many cases of Bell's palsy following mastoid operations, and in his experience a favorable outcome, like that reported by Dr. Hammond, was rather unusual.

Further Report of a Case of Hypoglossal-Facial Anastomosis.

DR. CHARLES H. FRAZIER, Philadelphia, said that his first opportunity to operate on a case of facial palsy was in August, 1903, when he was called in consultation with Dr. William G. Spiller to a see a patient who, five months previously, had shot himself, the ball entering the external auditory meatus. This resulted in a complete facial palsy. The case was one eminently suitable for operative intervention, as the nerve was irreparably damaged, and the muscles hopelessly paralyzed. The operation consisted in a hypoglossal-facial anastomosis. During the eighteen months that had elapsed since the operation the patient had been examined from time to time, and there had been a slow but progressive improvement. One month after the operation there was no response to the faradic current in any of the muscles. Reaction of degeneration and polar changes were marked. Six months after the operation there was no change in the condition. Nine months after the operation there was still no response to the faradic current, while with the galvanic current there was lessened irritability. At this date there appeared for the first time a peculiar involuntary movement of the angle of the mouth. Fourteen months after the operation there was still no response to the faradic current, but a slight increase of irritability under the galvanic current. Polar change was still distinct. Seventeen months after the operation voluntary movements at the angle of the mouth were observed for the first time. In addition to this, the patient was able to almost completely close the eye, and all the muscles responded to the faradic current.

Dr. Frazier called attention to the fact that it was not until after the fourteenth month had passed that a positive reaction to faradic stimulation was observed, with one exception, namely, the orbicularis palpebrarum, which responded slightly in the ninth month. Dr. Frazier said he thought no one would question the propriety of the operative treatment of facial palsy. The operation was founded on a physiologic law, and the only feature in the technic of the operation worthy of discussion is the choice between the eleventh and twelfth nerves. Dr. Frazier prefers the twelfth. So far as he has been able to learn, there had not been a single instance in which a voluntary effort to raise the shoulder has not been attended with contraction of the facial muscles, and these so-called associated movements constituted a very serious objection to the selection of the eleventh nerve. Theoretically an end-to-end anastomosis should secure the best results.

Some Newer Ideas on Nerve Anastomosis.

This paper, by DRS. WILLIAM G. SPILLER and CHARLES H. FRAZIER, was read by Dr. Spiller. He considered first the possibility of benefiting by surgical means patients afflicted with an incomplete hemiplegia. When the hemiplegia is complete, or nearly so, one can not hope to accomplish anything by

surgical procedures. There are many cases, however, in which there is a partial return of power in the paralyzed limbs, and experience shows that usually the restoration of motion is greater in the flexors in the upper limb and greater in the extensors in the lower limb, except those of the toes.

In order to study the conditions of paralysis existing in hemiplegia, Dr. Spiller examined 26 cases in which the paralysis dated from early childhood. The cases in which the hand had regained partial power were more numerous than those in which the foot had regained partial power. In 11 cases out of the 26 the flexors of the hand were so much stronger than the extensors that a nerve anastomosis might have been attempted, but only 4 cases offered much hope for improvement from an operation on the foot. From his investigations he concluded that there was probably a field for surgical intervention in certain cases of cerebral hemiplegia, but the cases must be carefully selected and thoroughly studied. Whether any benefit by nerve anastomosis would result to the hemiplegic individual or not, experience alone must decide. The subject, however, is one deserving attention. Dr. Spiller said that for several years he had been trying to devise some method for the treatment of athetosis, and the failure to control it in any degree is a reproach to medicine. In cases in which athetosis exists there must be irritation of the motor system somewhere. Theoretically, the proper procedure would be to cut the posterior roots of the affected limbs, the number to be cut depending on the condition in each case. This is always a serious operation, and the results at times have been unexpectedly grave. Division of one or more of the motor nerves of the affected limb, with immediate suture of the divided ends, might lessen the involuntary activity and might weaken the muscles slightly.

DISCUSSION.

DR. CHARLES H. FRAZIER said that the adaptation of operations known as nerve anastomoses or implantations to the treatment of cerebral palsies, as proposed by Dr. Spiller, opened up a field in neurological surgery which seemed full of promise. His first clinical experience in this line dealt with a woman 65 years of age who had an apoplectic attack five years previously. When the operation was performed she was hemiplegic; there was marked atrophy of the muscles of the hand, arm and forearm, but the paralysis was so much more marked in the extensor than in the flexor group of muscles that she could only partially, and with great difficulty, extend the proximal phalanges. An incision was made along the inner border of the coracobrachialis, exposing the brachial vessels and the main nerve trunks. The median and musculospiral nerves were partially isolated, and a flap composed of one-half the median nerve was implanted into the musculospiral, and sutured in such a way that the nerve fibers of the median were imbedded in those of the musculospiral. The results of the operation up to the present time had not been very positive, although it is still possible that greater improvement may take place in time.

The Pathology and Surgical Treatment of Chronic Facial Palsy.

DRS. L. PIERCE CLARK, ALFRED S. TAYLOR and THOMAS P. PROUT were the authors of this paper, which was read by Dr. Clark. He said it is not known why the facial nerve suffers from palsy with such frequency, nor is there adequate information regarding the nerve elements or the part of the nerve primarily involved. The extension of inflammation from the middle ear, or the effect of cold acting through this channel on the facial nerve, is easily understood. Facial palsy, both in men and animals, is relatively infrequent when the face and head are properly protected. A certain number of individuals suffer from a congenital narrowing of the foraminal exit of the nerve.

There are good reasons to believe that the initial changes of this condition take place in the perineural sheath, although the exact pathogenesis of Bell's palsy is still uncertain, because of the meagerness of the material at hand for study.

Dr. Clark said that the painlessness of Bell's palsy even to external pressure on the nerve trunk and the paralyzed muscles argued for a simple degenerative neuritis in the peripheral portion, and not a parenchymatous affection. There is good reason to believe that Bell's palsy is primarily a neuritis, which through strangulation of the nerve strands induces a low grade of secondary degenerative neuritis in the periphery. He briefly reported two cases.

DISCUSSION.

DR. ALFRED S. TAYLOR said that his technic of facio-hypoglossal nerve anastomosis involves the following steps: 1, The incision; 2, isolation and section of the facial nerve; 3, exposure of the hypoglossal nerve; 4, the implantation; 5, the closure of the wound; 6, the after-treatment. The isolation of the hypoglossal nerve is the most difficult and tedious step and involves whatever danger there is in the operation. Once identified, it is dissected upward until the stump of the facial nerve can be approximated to it without tension. This has to be done with care, so as not to divide the minute branches from the pneumogastric, the upper ganglion of the sympathetic and the two upper cervical branches, all of which were in the immediate neighborhood. The after-treatment is a most important feature in obtaining the desired result. Massage, electricity, and later, co-ordinate muscular movements, should be persistently and systematically resorted to for months. Dr. Taylor reported six cases of facio-hypo-glossal nerve anastomosis, and showed a number of new instruments that he had designed for the purpose of rendering the operation easier technically, and of avoiding distressing sequelæ.

DR. CHARLES A. ELSBERG reported a case of facial-spinal-accessory anastomosis which was of unusual interest on account of the duration of the paralysis at the time of operation (twenty-nine and a half years), and because of the absence of associated shoulder movements.

DR. B. SACHS said that in deciding the question whether or not to anastomose the facial nerve with the hypoglossal or the spinal accessory, his preference would be in favor of the latter procedure, as it involves a nerve of lesser dignity than the former. The entire question of nerve transplantation is an extremely important one, and the physiologic aspects of the problem are still unsolved. In facial palsy several cases have been reported in which the nerve anastomosis was done three and a half or four months after the onset of the disability. This, he thought, is too early, as many cases are on record in which improvement began much later without treatment or in spite of treatment. A year at least should be allowed to elapse before operation.

DR. LESZYNSKY said that he had seen patients with facial paralysis of long standing in whom the faradic irritability had returned, although there was no return of motility.

DR. WALTON said that Dr. Spiller's proposition should have the benefit of trial. In disease or injury of the lower neurons, every gain in motion, however slight, is gladly welcomed, and if hemiplegics can be helped by nerve transplantation, there is the added hope of lessening the cerebral spasm to which Dr. Spiller referred.

DR. SPILLER said that the statement made by Dr. Taylor that in late cases, in which the paralysis had existed for a long time, the nerve may have disappeared, is correct. He mentioned such a case in which the facial nerve could not be found at all. In facial palsy one of the earliest evidences of a return of power is a slight deepening of the naso-labial fold when the eyes were closed tightly.

DR. FRAZIER said that in his cases of nerve anastomosis the hypoglossal was selected in preference to the spinal accessory purely on theoretical grounds and a study of former operations, and because associated movements followed the selection of the spinal accessory.

DR. CLARK said he thought that the proper time to operate could be fairly accurately decided on by the results of the electrical tests, and he did not think it wise to fix an arbitrary period of time. In most forms of peripheral neuritis the electrical tests formed a basis of prognosis that is almost absolute.

DR. TAYLOR said that the operative damage to the hypoglossal and the tongue symptoms resulting therefrom were only

temporary, and he did not think they should be looked on as a serious objection to the selection of that nerve for the anastomosis.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns.]

Diphtheria.

In the employment of antitoxin in the treatment of diphtheria Voelcker, in *London Clin. Jour.*, recommends its use:

1. In every case of diphtheria, whether mild or severe.
2. In cases of faucial diphtheria use 3,000 units.
3. In cases of nasal diphtheria use from 6,000 to 9,000 units at once. In laryngeal diphtheria use 6,000 units and repeat the dose in twenty-four hours if the symptoms of obstruction are not diminishing.
4. When the symptoms call for intubation or tracheotomy it is better to employ the larger doses of antitoxin (doses of 6,000 units), and to repeat the dose in twenty-four hours if no improvement has taken place.
5. In cases of faucial diphtheria, if the membrane does not show signs of improvement and of separation the injection should be repeated after twenty-four hours.
6. The injection should be made into the subcutaneous tissues of the abdominal wall under antiseptic precautions by carefully washing the site of injection with an ethereal solution of soap, after which a compress of 1 to 1,000 solution of mercuric chlorid should be applied. The needle must be sterilized by boiling, fixed to the syringe, which is then filled with the antitoxin and the needle introduced obliquely through the pinched-up skin into the connective tissue and the solution injected slowly. The seat of puncture should then be sealed with a collodion dressing. In 307 cases the author reports only 2 cases of localized abscess formation.

In children the use of any local anesthetic is not advised, as cocain depresses the heart, which is dangerous in diphtheria, and freezing the skin makes the introduction of the needle and antitoxin more difficult, and when thawing takes place the presence of the pain proves that it was only postponed and not prevented. The site in the abdominal tissues has been recommended in preference to the back, in order that the patient may rest well on the back.

The author did not try the rectal injection of the antitoxin, as is recommended by Solteau Fenwick.

The general treatment should consist in keeping the patient in the horizontal position for three weeks, after which time the child may be allowed an extra pillow, then two, then a bed rest, followed by sitting up on the sofa, a walk in the ward, etc. The average stay of the patient in the hospital is forty days. During convalescence a careful watch must be kept on the pulse, and if it becomes rapid or irregular, the horizontal position must be assumed and cardiac stimulants such as strychnia should be given hypodermically, or atropin, or, better, port wine.

Regular feeding must be observed, avoiding overloading the stomach by giving small amounts at frequent intervals. In older children the period of recumbency may be shortened one week if no heart complications arise. Iron and nux vomica or cod-liver oil are of value during convalescence.

LOCAL TREATMENT.

The author does not advocate forcible removal of the membrane unless it be very loose and on the point of separation. He does not advise the use of caustics nor of 1 to 1,000 bichlorid solutions. In some cases a local application of a solution containing salol, glycerin and alcohol has been of service. A local washing with a boric acid solution every three or four hours for the first three days, and less often later, is recommended.

Chronic Dyspnea.

In the treatment of chronic dyspnea due to vascular changes, Foxwell, in *Ther. Gazette*, recommends the following combinations:

R.	Liq. strych. (1 per cent.)	m. v	30
	Tinct. strophanthi	m. x	65
	Liq. trinitrini (1 per cent.)	m. ii	12
	Sodii bromidi	gr. xv	1
	Tinct. card. co.	5ss	2
	Aquæ q. s. ad.	℥i	30

M. Sig.: To be taken in two or three divided doses, alternating with the following:

R.	Pulv. rhei	gr. i-ii	06-.12
	Hydrarg. chloridi mitis	gr. 1/20-1/10	003-.006
	Ext. hyoscyami.	gr. i-ii	06-.12

M. Ft. cap. No. i. Sig.: One such capsule once or twice daily.

Psoriasis.

Shoemaker, in *Med. Bull.*, advocates the following treatment of psoriasis:

R.	Acidi hydrochlor. dil.	gtt. ii	12
	Essentiæ pepsini	℥i	4

M. Sig.: To be taken at one dose and repeated after each meal. Also:

R.	Podophyllotoxinii		
	Aloini, āā.	gr. x	65
	Pulv. jalapæ		
	Massæ hydrarg., āā.	gr. xxx	2
	Ol. menth. pip.	m. iii	20

M. Ft. pil. No. xxx. Sig.: One pill at bedtime.

When itching is present, as is rarely the case, the following combination is recommended to give the patient relief:

R.	Chloralis hydratis	5ss	2
	Pulv. camphoræ	gr. xx	1 30
	Acidi carbolici.	m. l	2 30
	Sulphuris sublim.	℥i	4
	Ung. aquæ rosæ.	℥i	30

M. Ft. unguentum. Sig.: To be applied locally.

In any cases of psoriasis the cause should be ascertained and treated; chronic indigestion and a rheumatic diathesis are frequent causes of this trouble. The foregoing outline of treatment is applicable when a history of digestive disturbances is obtained.

Convulsions in Childhood.

Ashby, in *London Lancet*, states that convulsions are most common in infants who have been artificially fed first on diluted cow's milk which causes flatulence and curdy stools. The fact that convulsions are unilateral does not always prove that they are not reflex.

Laryngismus stridulus is a form of reflex convulsions and is always associated with rickets. Adduction of the cords is easily produced during childhood and frequently results from such slight causes as anger, irritation of the fauces as in catarrh, or discomfort in the gastrointestinal tract. In some cases there is tetany. Convulsions may also be due to brain irritation, as in meningitis, encephalitis, thrombosis, hemorrhage, tumors and syphilis. Whooping cough may be the cause of convulsions in childhood. In the treatment of convulsions during the convulsive stage a subcutaneous injection of morphin is recommended by the author for allaying the irritability of the nerve centers and checking the spasms, whether due to colic, meningitis or laryngismus stridulus. A strong infant six months old may be given grain 1/40 (.0015) and one a year old double that amount. Morphin should not be given to wasted and feeble infants. Inhalations of chloroform also act quickly, but the action soon ceases. Chloral by rectum is slower in action, but more permanent. Four or five grains (.25-.30) dissolved in water, or in egg and milk, may be given to an infant aged from six months to a year. The bromids act too slowly to be of use during the fits, but may be of service later to prevent a recurrence. In all cases calomel should be given, if the patient can swallow, to clear out the intestinal tract.

Nervous irritability may be prevented by sea breezes rather

than by steam tents, avoiding too great changes in temperature, especially when laryngeal or bronchial catarrh is present. The child should receive a warm bath every morning, followed by a cold salt water sponge, being careful to rub the skin dry to get a reaction, and to increase the time in the fresh air from day to day. The diet must be regulated. Infants suffering from convulsions are often given too much milk and there is resulting intestinal intoxication. In convulsions of older children, whether epileptic or reflex, a modification in the diet is necessary, giving a mixed diet, moderate in amount, avoiding overfilling the stomach. Cut down the starches. Give cocoa with egg and toast for breakfast; a moderate amount of beef or mutton, with cooked vegetables and stewed fruit, cocoa, toast and honey, for dinner. Cascara may be necessary to promote sufficient elimination by the bowels. The child may be withdrawn from school, but should be given interesting employment for a few hours daily.

Grippal Tonsillitis.

The following résumé of the treatment of tonsillitis associated with organisms of la grippe as causative factors is recommended by E. D. Lederman of New York: The treatment may be divided into constitutional and local. The former should consist of thorough catharsis, preferably with calomel in one-tenth grain (.006) doses, taken every ten minutes for ten doses, followed five hours later by eight ounces of magnesium citrate. For the high temperature which is usually present, sponge baths should be employed at a temperature of 70 F., followed by alcohol rubbing and massage.

The diet should be confined to liquids such as beef juice, matzoon, Vichy and milk.

THE LOCAL TREATMENT.

Cold compresses or icebags to the throat, with the sucking of small pieces of ice, alleviate to a considerable degree the pain and soreness in the throat. During the time the follicles of the tonsils are involved excellent results are obtained by applying to the inflamed area every two hours a solution of adrenalin, either by spray of by local application. This solution has a twofold effect: 1, A reduction of local inflammation; 2, a stimulating effect on the heart and circulation.

Alternating with local application of adrenalin the tonsils should be swabbed with tinctura ferri chloridi or sprayed with a solution containing equal parts of hydrogen peroxid and water.

Cultures, of course, should be made from the tonsillar exudate to ascertain the presence or absence of the Klebs-Loeffler bacillus, and, if present, the regulation treatment for diphtheria should be instituted.

CONVALESCENCE.

The period of convalescence is very important and should not be overlooked, as the patient is invariably weakened by this infection. The following is of service in this stage of the disease:

℞. Strych. sulph.....gr. 1/40 | 0015
Spts. frumenti.....ʒi 30|

M. Sig.: To be taken at one dose and repeat three times daily. [In regard to Dr. Lederman's prescription containing alcohol and strychnin, we wish—without discussing the subject—to direct our readers' attention to an abstract in THE JOURNAL, Dec. 17, 1904, page 1846, in which mention is made of the therapeutic antagonism of these two preparations.—ED.] Whisky may be administered in the form of an eggnog. The benefit derived from a change to a milder climate can not be overestimated.

Medicolegal

Province of Expert Witnesses.—The Supreme Court of Missouri, Division No. 1, says, in the personal injury case of Taylor vs. Grand Avenue Railway Co., that it would have been proper to state to the plaintiff's experts the nature and extent of the injuries received by the plaintiff as they appeared at the time of the accident, and then to ask them whether or not in their opinion such injuries might, could or would result in paralysis. The experts having thus given an opinion, it would have been for the jury to find the fact as to whether in this particular case the paralysis was caused as the plaintiff's experts said it might have been caused, or whether it was the result of other causes, as the defendant's experts testified might be the case. To the trained legal mind there is a very essential difference between permitting an expert to give an opinion and permitting him to draw a conclusion. The one is a province of a witness; the other is, in the first instance, the special prerogative of the jury. When a witness is thus permitted by the court to invade the province of the jury, it goes to the jury with the indorsement of the court, and is calculated to make the jury believe that it was proper for the witness to find the fact, instead of the jury doing so.

Administering Abortifacient Can Not Be Made Manslaughter.—Section 1825 of the Revised Statutes of Missouri of 1899 provides that "every person who shall administer to any pregnant woman any medicine, drug or substance whatsoever or shall use or employ any instrument or other means with intent thereby to destroy the fetus or child of said pregnant woman, unless the same shall be necessary to preserve the life of such woman, shall be guilty of manslaughter in the second degree." The Supreme Court of Missouri, Division No. 2, says, in the case of State vs. Hartley, that it was contended that this law, under which the indictment in this case was drawn and the defendant charged with manslaughter, was inoperative and invalid, in that it undertook to establish a degree of felonious homicide, where neither the death of the child nor of the mother resulted from the acts committed, and where there was no killing or homicide, and the court holds that the legislature could not make that manslaughter when the basis of its legislation did not in fact exist. In other words, there can be no manslaughter when there is no homicide; no more than there can be murder when there is no homicide.

Determination of Mental Capacity.—The Supreme Court of Tennessee says, in Nashville, Chattanooga & St. Louis Railroad Co. vs. Brundige, that the contest in this case was narrowed down to the question of whether the latter party had sufficient mental capacity at the time of a compromise for personal injuries to make a valid contract. Two physicians were permitted to testify, over objection, to the effect that she did not have sufficient mental capacity to transact business and to make a contract. The court holds that this was error; that the testimony was clearly incompetent, and should have been excluded. It says that the degree or quantum of mental capacity which the party whose act is called in question must have, to enable him to make a valid contract, is a question of law for the court to decide, and whether said party has the required quantum is a question of fact to be found by the jury from all the evidence; and the opinions of witnesses are not competent evidence, in cases of this kind, on either point. The mental capacity of the plaintiff in this case to contract was also the direct point—practically the sole point—to be decided by the court and jury; and the admission of the testimony mentioned was, in effect, a substitution of the opinion of the witnesses on both the law and the facts of the case for that of the triers provided by law to determine them. This could not be done. The testimony of witnesses must relate to the facts, and it is the province of the court to determine the law, and the jury the ultimate facts. Witnesses, in cases involving mental capacity, after stating the facts within their knowledge, may give their opinion, formed from those facts, of the soundness or unsoundness of the mind of the party in question, but can not be permitted to express an opinion whether such party had sufficient mental capacity to make a contract or to execute a will, as the case may be. There seems to be but little or no conflict in the authorities on this subject.

Complaints of Pain to Physician as Evidence.—The Supreme Court of Georgia holds, in Atlanta, Knoxville & Northern Railway Co. vs. Gardner, a personal injury case brought by the latter party, that, on the trial of such an action, complaints made by the plaintiff to her attending physician of pains in designated portions of her body were not admissible in evidence in her favor, unless made under such circumstances

as to be equivalent to spontaneous and involuntary exclamations or outcries, groans, convulsive movements and other physical manifestations of present pain and suffering. The court says that it devoted considerabe time and investigation to the question here presented, and examined a great number of cases in which, in one form or another, the question of the admissibility of statements of this character, made by one person to another, had been presented and determined. It finds that practically all of the courts in which the question has arisen hold that statements of present pain and suffering, made before suit brought, by a patient to his physician who has been called in solely for the purpose of examining, advising and treating him, may be given in evidence by such physician, when called as an expert witness, as part of the facts on which he bases his opinion as to the nature and extent of the patient's injuries or disease. As to the admissibility of statements of past pains or sensations, made by a patient to his physician, there is a decided conflict in the rulings of the courts, some holding that such statements are inadmissible, while others hold that it is admissible for the physician to testify to them when giving his opinion as an expert to the jury. The weight of outside authority, however, seems to be that statements or narratives of past pains and symptoms made by a patient to his physician are inadmissible. Some of the courts, impressed with the danger of opening the door of evidence for the admission of hearsay testimony, particularly in cases in which the hearsay statement may be of a self-serving nature, hold that statements of the above character, even when made by a patient to his physician, are not admissible if made after suit brought by the patient for his injuries. Others hold that they are not admissible if made to a physician or surgeon called for the sole purpose of qualifying himself to testify, as an expert, in behalf of the plaintiff in an action for damages. A few recognize no such distinction, but hold that the fact that the statements were made under such circumstances does not render them inadmissible, but is merely a circumstance to be taken into consideration by the jury in weighing the effect of such statements and the opinion of the expert based in part thereon. Continuing, the court says that while it feels some hesitancy in laying down a rule in Georgia which will run counter to what seems to be the rule generally, if not universally, accepted elsewhere, it has reached the conclusion that there is no sound reason for making any exception in cases of this character to the rule which excludes hearsay testimony. The court says, however, that the distinction between statements of pain and suffering made to a physician and such statements made to any other person, so far as admissibility in evidence is concerned, has been rejected by a number of courts, including the Supreme Court of the United States. So the court has eminent authority to sustain its view that. if complaints of a person of pain or other physical sensation which produce discomfort or suffering are admissible in evidence at all, there is no sound reason for distinguishing between those made to a medical attendant and those made to any one else.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

March 25.

1 Is the Common House Fly a Factor in the Spread of Tuberculosis? J. O. Cobb, Los Angeles.
2 Case of Extensive Carcinoma of Tongue and Neck Presenting Points of Special Interest. W. S. Bainbridge, New York City.
3 Dissertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Continued.) H. Wakefield, New York City.
4 Methods Employed in the Examination of Milk by City Health Authorities. A. H. Stewart, Philadelphia.
5 Nonsequitur in Medicine. H. A. Fairbairn, Brooklyn.
6 Delirium and Hallucinations of Digitalis. H. O. Hall, Washington.

New York Medical Journal.

March 25.

7 Medical Progress. J. A. Wright, Toledo.
8 *Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases, with a Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. David L. Edsall, Philadelphia.
9 Various Plastic Operations. Carl Beck, New York.
10 *Osteoarthritis of the Spine; Report of Case. H. F. Stoll, Hartford.
11 *Gonococcus Infections in Children with Especial Reference to Their Prevalence in Institutions and Means of Prevention. (Concluded.) L. Emmett Holt, New York.
12 Brief Résumé of the Action of Some of the Important Somnifacients, with Clinical Notes on a New Hypnotic. A. P. Stoner, Des Moines.
13 Indications for Treatment of Gastric Hemorrhage. F. G. Connell, Salida, Colo.
14 Diagnosis and Treatment of Acute Pelvic Peritonitis of Gonorrheal Origin. B. M. Anspach, Philadelphia.

8. **Milk Infections in Typhoid.**—Although Edsall recognizes the possibility of the milk infection origin of typhoid, he believes that there is another group of cases in which the effects of bad milk are very often overlooked, chiefly because they are rendered obscure by other factors that are present. He refers to cases occurring principally in persons on a milk diet, and especially in those with acute infectious diseases in which the symptoms are caused by the milk used in the diet, but in which they are not severe enough to arouse a suspicion as to their source. The milk does not itself produce grave and evident infection, but it succeeds in making worse a disease that is already more or less bad. He reports results obtained in feeding typhoid patients only pasteurized milk. Of 92 cases of typhoid, 8 patients had diarrhea on admission. In 5 of these it subsided in three or four days. Only 4 patients developed diarrhea while under treatment. One of these, a severe case, died of hemorrhage, and the autopsy showed numerous ulcers in the colon. Edsall considers a diet composed almost exclusively of good milk the best diet for most cases of acute infectious disease, particularly typhoid fever.

10. **Osteoarthritis of Spine.**—Stoll reports a case for the purpose of demonstrating the rather common mistake made in considering the leg pains of osteoarthritis to be sciatica.

11. **Gonococcus Infections in Children.**—That gonococcus vaginitis is a very frequent disease, one to be constantly reckoned with, in institutions for children, is shown by Holt. It is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. In its milder forms and in sporadic cases it is extremely annoying because so intractable; in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membranes, and in its epidemic form it is a veritable scourge in an institution. It is imperative that children suffering from this disease should not remain in the same wards or dormitories with other children, because it is practically impossible to prevent the spread of the disease, if infected children remain in the wards with others. If a purulent vaginal discharge is present, a systematic microscopic examination of smears made from the discharge should be a matter of routine. In the absence of microscopic examinations, a purulent discharge in a young child may be assumed to be due to the gonococcus. In cases in which the gonococcus is found, but in which there is no vaginal discharge, or only a very slight discharge, the children should also be quarantined. One of the greatest difficulties in connection with the gonococcus vaginitis, says Holt, arises from the prolonged quarantine necessary, because these cases are of very chronic character and are very resistant to treatment.

Medical Record, New York.

March 25.

15 Manual Garcia: Teacher, Discoverer and Man. J. E. Newcomb, New York City.
16 *Radiotherapy and Surgery, with a Plea for Preoperative Radiations. W. J. Morton, New York City.
17 *Bile-tract Adhesions. R. T. Morris, New York City.
18 *Intratracheal Injections. J. W. Gleitsmann, New York City.
19 Present Status of Blood Examination in Surgical Diagnosis. F. E. Sondern, New York City.
20 *Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon Through the Vermiform Appendix or an Opening into the Cecum. Wm. H. Arthur, Washington.
21 A Warning and a Protector for X-ray Workers. A. Holding, New York City.

16. **Radiotherapy in Surgery.**—The nature of Roentgen and Becquerel radiations, their effect on tissue and their effect on disease, is considered by Morton. In cases of cancer he advises practicing *x*-radiations and radium radiations thoroughly

from six weeks to two months before operation, and as well after operations, for about the same period of time. He says it has been proved that radiation treatment exerts a retarding effect on the growth of some cancers, and that it cures some cases. Preoperative radiation not only increases the ratio of cures by operation, but it also transforms some inoperable cases into operable cases. It is recommended as a precautionary measure, probably quite as important as preoperative antiseptic preparation for surgical operation.

17. **Bile-Tract Adhesions.**—Morris says that very extensive functional disturbance of abdominal viscera is caused by webs of adhesion, like spider webs, that extend from the bile tract to the neighboring viscera and pull on the great sympathetic ganglia. He is convinced that many persons are suffering from the effects of such adhesions, and that often the symptoms produced have led to an operation on the gall bladder for the purpose of removing stone, when there was none to be found. Adhesions between the gall bladder and liver are, perhaps, the least harmful. Adhesions between the cystic duct and the adjacent peritoneum of other structures cause angulation of the cystic duct and give rise to symptoms that are mistaken for gallstone colic, or colic from the passage of inspissated bile. Adhesions between the bile tract and the pylorus can inhibit peristalsis and cause constipation, chronic dyspepsia, and dilatation of the stomach. Adhesions between the bile tract and the hepatic flexure of the colon can cause constipation and perhaps mucous colic. Morris believes that these "gall spiders" follow gastroduodenitis, diaphragmatic pleurisy, acute cholecystitis, acute indigestion and a group of cases without very definite diagnosis, in which there is a history of epigastric tenderness, rigors, febrile reaction, and general malaise extending over a few days. In going over these cases months or years after the acute symptoms have disappeared, we are to note if there is undue tenderness on pressure over the bile tract, a tenderness that is quite persistent. It may be absent on some days, but it is present to a greater or less degree most of the time. The patient will complain of a certain degree of discomfort in the bile-tract region, and at times, when he is most disturbed, the abdominal muscles will become rigid in order to splint the disturbed peritoneum. The pain or colic is less severe and more transitory than it is apt to be when the muscularis of the gall bladder or bile ducts is trying to force out a concretion.

18. **Intratracheal Injections.**—Gleitsman has found intratracheal injections useful in alleviating the dry cough in the beginning stage of pulmonary tuberculosis, and, at a later stage, in modifying favorably the putrid secretion. In bronchiectasis and blennorrhea the injections act almost as a specific. Many cases of asthma will be relieved. He has also treated successfully a number of cases of chronic tracheitis and bronchitis. Cases of obstinate tracheal syphilis have been cured, and the fetid pulmonary gangrene has been favorably influenced. In cases of hemorrhage the risk of increasing the hemorrhage has to be considered. As a vehicle he uses a petrolatum preparation to which may be added menthol, not more than 5 per cent., or ½ per cent. each menthol and camphor, but he has often found the camphor irritating. The list of remedies which may be used is very limited.

20. **Colonic Irrigations in Chronic Dysentery.**—Good results are reported by Arthur in the treatment of chronic dysentery by irrigation of the colon from the caput coli, utilizing the appendix as a tube through which to introduce the irrigating fluid, as suggested by Weir of New York. The usual incision is made as for appendicectomy, and the appendix is stitched to the skin. The abdominal wall is securely stitched layer by layer, down to the point where the appendix comes through. Forty-eight hours later the protruding appendix is cut off, a catheter is introduced and irrigations are begun at once. In a week all stitches are removed, the irrigating tube is left in, secured with a pinch-cock, and changed from time to time as it becomes worn out. A 1 to 2,000 quinin solution, or ¼ per cent. solution of silver nitrate is used for irrigation, 500 c.c. being poured in twice a day for six weeks or longer, if necessary. When the tube is finally withdrawn, if the opening does not close spontaneously, it is a simple matter to loosen the adhesions around the appendix, to draw it out, to ligate, cut off, and sterilize the stump with a thermocautery point, and to drop it back, closing the small opening in the abdominal wall with a single suture carried rather deeply.

Medical News, New York.

March 25.

22 *Roof Gardens on City Private Houses. W. P. Northrup, New York City.
23 *Fifteen Years' Experience in the Treatment of Typhoid Fever at the Roosevelt Hospital. W. H. Thomson, New York City.
24 *Clinical Studies in Blood-pressure and Shock in Traumatic Surgery. J. M. Wainwright, Scranton.
25 The Purpose of Eyeglasses. E. M. Alger, New York City.
26 Treatment of Chronic Empyema of the Antrum, both Simple and when Combined with Empyema of the Ethmoid and Sphenoid. R. Bishop Canfield, Ann Arbor.

22. **Roof Gardens on Private Houses.**—The object of Northrup's paper is to suggest how the roofs of private houses in cities may be adapted to become safe and sunny playgrounds for children, and the results obtained on Manhattan Island are described.

23. **Fifteen Years' Experience in Typhoid.**—Thomson submits a review of fifteen years' experience in the treatment of typhoid in the Roosevelt Hospital. The total number of admissions to his wards during four months, from May to July and from September to November each year, from May 1, 1889, to Nov. 1, 1904, were 574 patients, 398 of whom were males, and 176 females. The total number of deaths was 40; 31 males and 19 females, or 7.05 per cent. The total number of patients who died within a week after admission was 23; 15 males and 8 females, or 57 per cent. of all deaths, and 80 per cent. of these did not survive the fourth day. Among the remaining 551 patients, who were in the hospital for more than a week, there were 17 deaths, or 3.09 per cent. Diarrhea occurred after the first week in 12 per cent. of the patients, and in the majority of them it was not severe. Constipation was of frequent occurrence. Tympanites was recorded in 101, or 18 per cent. About 40 per cent. of the whole number of instances of tympanites were noted in 39 soldiers admitted for typhoid contracted at various camps in this country and in Cuba during the Spanish-American War. Deducting these soldiers, tympanites occurred in 62 patients, or about 26 per cent. It was noted in cases admitted late in the disease, and in the majority of those it disappeared soon afterward under treatment. Hemorrhage from the bowel occurred in 1 per cent., and it was readily controlled. Among the 31 deaths of male patients, 7 succumbed to intestinal perforation. One case also occurred in a woman during a relapse in the fifth week, and another in a boy on the tenth day. He was operated on and recovered. Fives others were operated on but died. Delirium was noted in 60 cases, or 16 per cent. Of this number 26, or nearly 50 per cent., were delirious on admission, and 12 of these patients died within that week; the rest recovered in a week or less. Fissure of the tongue was not recorded. Tremors and subsultus were too rarely observed to figure among the clinical symptoms. Sordes on the teeth and lips never developed after admission. Pneumonia occurred in 11 patients, or 1.9 per cent.; bronchitis in 65, or 18 per cent., but it was an initial symptom in more than 40 per cent. of the cases, and was easily controlled. Peripheral neuritis occurred in 28, about 7 per cent., and in each case was limited to the feet. Phlebitis occurred in 11, and was very troublesome in 2. Relapses occurred in 62, or 18 per cent. of all cases. As a rule, the prognosis is not unfavorable, except in those patients who begin the relapse with vomiting. Relapses appear to be more frequent in that class of patients in whom the brunt of the attack falls on the intestine. The patient with symptoms of pronounced abdominal lesions, such as persistent tympanites and tongue tremor, should not be allowed solid food in any form for ten days after the temperature has fallen to normal. The general line of treatment adopted by Thomson is as follows: Early attention to the state of the kidneys, using rectal irrigations of four gallons of normal saline solution at a temperature from 115 to 120 F., twice a day. Intestinal disinfection with calomel and the systematic employment of intestinal antiseptics—from 10 to 20 grains of bismuth subcarbonate, every

three hours. If tympanites is persistent, 5 grains of sulphocarbolate of soda is added to each dose. For cardiac weakness, 1 ounce of whiskey, every three hours, given after milk; or camphor given subcutaneously in 7½ gr. doses, dissolved in 20 minims of sterilized almond or olive oil. The diet should consist of milk diluted one-half with lime water. Five grains of scale pepsin or 10 grains of saccharated pepsin are given every three hours, and to this Thomson ascribes many of his good results. The Brand bath he considers the most effective of all agents in typhoid. The treatment is described in detail, and for this reference must be made to the original article.

24. **Blood Pressure and Shock in Traumatism.**—For the purpose of ascertaining the important clinical facts in the treatment of shock due to trauma, Wainwright has made a careful study of the blood pressure by means of the Riva-Rocci sphygmomanometer. He agrees with others that morphin is of great value to remove or diminish the causative nerve impulses in shock; but considers that the most effective treatment is the mechanical one. It suffices in many desperate cases; after it has been carefully applied strychnin and digitalin may possibly be of value, but these drugs alone without mechanical treatment are probably of no value in severe cases. Nitroglycerin, atropin and alcohol are inert or harmful, though alcohol is valuable in after-conditions. Intravenous infusions are of real and great value. The ordinary detailed attention to avoidance of exposure, the application of artificial heat, full and even anesthesia with ether and not chloroform, rapid operative work without unnecessary handling, the copious administration of water by mouth or rectum, etc., have the same great value as always. Wainwright has found the Riva-Rocci instrument of the greatest practical value in the care of severe traumatic cases, and says there is no way in which the operator can so easily keep informed as to the true condition of the patient as by the use of this instrument. The ideal stage for operative repair of the injury is the primary pressor period. The sensory impulses which finally cause shock at first cause a stimulation of the vasomotor centers and a rise in pressure for a certain period before exhaustion supervenes. This high primary pressure is generally markedly reduced when the sensory impulses are blunted by full anesthesia. In one case after a preliminary intravenous infusion, followed by one-fourth grain of morphin, a simultaneous amputation of the upper arm and the thigh was performed with a fall of only 20 mm. in the blood pressure. In a second case, not so treated, the blood pressure fell over 100 mm. In many cases, even when simple mechanical or no treatment at all has been employed after reaction, the blood pressure reaches an unusually high point. No explanation for this occurrence is yet evidenced. In one case, the handling of the abdominal viscera increased the pulse rate from 70 to 150, but the sphygmomanometer showed a rise in the pressure and no alarm was felt. The pressor effect of water by mouth is shown in 2 cases. This is due to reflex action, says Wainwright, and not to the mechanical effect of the water absorbed. The effect is greater after carbonated water than after plain. The pressor effect of a friendly visit is shown in another case.

Bulletin of the Johns Hopkins Hospital, Baltimore.

March.

27 Tumor of the Parathyroid Gland. W. G. MacCallum, Baltimore.
28 Bacillus Violaceus Manilæ. (A Pathogenic Micro-organism.) P. G. Woolley, Manila, P. I.
29 Report on the Agglutination Reactions of the Bacillus Dysenteriæ (Shiga) with the Blood Serum of Patients Suffering with Summer Diarrhea. C. K. Winne, Jr.
30 Repeated Copious Hemoptysis from an Aortic Aneurism, Extending into the Right Lung and Finally Rupturing into the Pleura. T. W. Clarke, Cleveland.
31 A Case of Cesarean Section Following Ventral Fixation. A. H. Clark and R. L. Bowley, Hartford, Conn.
32 Ovariotomy at Extremes of Life. Report of a Case in a Girl Aged Five. H. I. Wiel.

The Providence Medical Journal.

March.

33 Recent Debts to Biology. F. P. Gorham, Providence.

Lancet-Clinic, Cincinnati.

March 25.

35 Bacteriology and Immunity. "Cessante Causa, Cessat Effectus."—The Germ Doctrine—What It Is and What It Is Not. R. E. Haughton, Richmond, Ind.
36 Treatment of Dysentery. C. W. M'Collum, Erlanger, Ky.
37 Early Diagnosis of Cancer of the Body of the Uterus. R. B. Hall, Cincinnati.
38 Address, Academy of Medicine of Cincinnati. M. A. Tate, Cincinnati.

Journal of Nervous and Mental Disease, New York.

March.

39 Soul Paralysis. H. H. Hoppe, Cincinnati.
40 *Anatomic Findings in Korsakoff's Symptom-complex. F. R. Sims, Danvers, Mass.
41 *Case of Myasthenia Gravis with Autopsy. C. W. Burr, Philadelphia.
42 *Multiple Sclerosis with Autopsy in Two Cases. S. G. Webber, Boston.

40. **Korsakoff's Symptom-Complex.**—Sims reports the anatomic findings in two cases apparently of alcoholic origin in which the patients died in an early stage of the disease. The first case was an example of an acute polyneuritis with a chronic mild delirium, developing symptoms resembling cerebral hemorrhage. The second case was more chronic in onset and more typical. In both cases there were acute degenerations of many peripheral nerves; axonal, reaction in anterior horn cells, in cells of Clarke's column, and in some cranial nerve nuclei, and various non-systemic degenerations of intraspinal fibers, together with acute or axonal alterations of various cells of the cortex. In one case, proliferating glia cells were found in the neighborhood of altered Betz' cells of the motor cortex.

41. **Myasthenia Gravis.**—Burr's case is of pathologic interest because it adds another to the relatively large, though absolutely small, number in which the thymus gland was either persistent in the adult, or persistent and diseased, and associated with lymphoid infiltration of the muscles. It is interesting clinically because the patient exhibited visual symptoms most frequently met with in, and at one time regarded as pathognomonic of, hysteria, viz., contraction of the fields of vision, partial reversal of the red and blue fields and later color confusion. The course was typical of myasthenia, and the result was death. The lesions found at the autopsy were perivascular accumulations of free red blood cells in the region of the red nucleus and a lymphoid infiltration of the muscles.

42. **Multiple Sclerosis.**—Webber has seen in private practice over 20 cases which have been diagnosticated as sclerosis. Of these about half were marked with a question; the others were sufficiently well defined and the diagnoses need not be doubted. Two cases in which he obtained autopsies were diagnosticated as tumor of the brain and locomotor ataxia, respectively. In the latter case, appendicitis was found and the locomotor ataxia was discovered to be multiple sclerosis. In the first case the symptoms of headache, dizziness, vomiting and impairment of motion and sensation of the whole left side seemed to justify a diagnosis of tumor of the brain. A certain amount of nystagmus of the left eye, when the eye was turned to one side, was the only symptom strongly suggesting sclerosis, and this might well have been owing to the defective action of muscles caused by tumor. In the case diagnosed as locomotor ataxia, the symptoms were not clearly indicative of that disease, nor were they the usual symptoms of multiple sclerosis. The explanation of this is found in the fact that the patches of sclerosis were in the posterior columns of the cord, while those in the brain were not numerous nor large enough to give characteristic symptoms. In the first case, the cord was much less affected than the brain, which was comparatively small. Scattered throughout the cerebrum and cerebellum in the white substance, especially on the right side, were numerous patches of sclerosis, varying from a minute point to the size of a bean. The right corpus striatum and the right corpus dentatum were much changed. Sclerotic patches were found in the pons in the floor of the fourth ventricle and around the aqueduct of Sylvius. There were some spots in the medulla and one spot in the cord about an inch below the medulla.

Annals of Surgery, Philadelphia.

March.

43 *Diagnosis and Treatment of Fracture of the Carpal Scaphoid. F. E. Codman and H. M. Chase, Boston.
44 Fractures of the Tarsal Bones. D. N. Eisendrath, Chicago.
45 *Osteoplastic Resection and Laminectomy. W. S. Bickham, New York.

46 Case of Cervical Rib with Symptoms Resembling Subclavian Aneurism. J. B. Murphy, Chicago.
47 *Cases of Intussusception in Children Treated by Laparotomy. C. H. Fagge, London.
48 *Id. C. Wallace, London.
49 Interstitial Hernia. C. G. Cumston, Boston.
50 Relation of Mechanical Distention to the Etiology of Appendicitis. C. Van Zwalenburg, Riverside, Cal.

43. Fracture of Carpal Scaphoid.—Codman and Chase summarize their paper as follows: Cases of simple fracture of the scaphoid which have not been treated or which have been treated as sprains, by a short period of fixation, followed by massage, active and passive motion, etc., seldom, if ever, have union of the fragments. If the joint is kept fixed for a number of weeks immediately after the injury, union may occur, but the functional result is not perfect, although better than in cases of non-union. It is too late to obtain union if fixation is not attempted within a few weeks after the injury. Excision of the proximal half of the broken scaphoid promises a better ultimate result than any other form of treatment. Since operation, nevertheless, is an undesirable risk, a reasonable attempt should be made to obtain union by fixation, if the case is seen soon after injury. Operation should not be delayed many months, because secondary joint changes may occur and chronic arthritis result. The advisability of operation in cases of long standing is doubtful, and must be decided by the amount of disability present in each individual case. The clinical history of 18 cases is given in detail.

45. Osteoplastic Resection and Laminectomy.—Bickham discusses the general considerations of the osteoplastic resection of the spine and of laminectomy and their relative values, the features common to both operations and the technic of each. The paper is well illustrated and considers the subjects exhaustively.

47. Intussusception in Children.—Fagge discusses 18 cases. Of the patients under one year, 14 in all, 10 were stated to have been entirely breast-fed. In 16 of the 18 cases a tumor was felt either through the abdominal wall or by rectum. In 15 of these 16 cases the diagnosis was easy and treatment was prompt. In 1 case a diagnosis of tuberculous peritonitis was made, and in consequence of this operative interference was undertaken too late. This was probably a chronic intussusception in which the acute exacerbations were caused by an increase of the invagination. Both the cases in which no tumor was found ended fatally. Ten of the 18 cases were of the single ileocecal type. One case was of the enteric type, and was of interest in that the ileum at the apex of the intussusception was so much narrowed as to suggest the possibility of a congenital stricture at that spot having given rise to the intussusception. There were 7 double intussusceptions, 3 colic-ileocecal, 2 ileocolic-colic, and 2 enteric ileocecal. In 1 case there was possibly a triple intussusception, for the ileum was prolapsed into or through the ileocecal valve and there was a well marked and apparent invagination of the caput coli some distance from the right of the valve, so that this may have been colic ileocolic-colic and not ileocolic-colic, as mentioned in the statistics. In 17 cases a primary laparotomy was performed at the earliest possible moment; in the eighteenth case inflation had been twice tried and failed. Except in 2 cases the incision was made on the right side of the middle line, with the center at or below the level of the umbilicus; in the majority it was through the right semilunar line. Six patients died between four and twenty hours after the operation from shock and toxemia, which in four cases was clearly due to the resection of the bowel. One of these patients was so ill that nothing more than the formation of an artificial anus could be attempted. In 1 case the cause of death could not be determined. Death occurred on the fourth day. Fagge's immediate results show a mortality of 39 per cent.; if in this list are included two babies who were readmitted within a few days of their discharge, and whose deaths were indirectly a result of the intussusception, the mortality increases to 50 per cent. Both these babies died 23 days after laparotomy. Excluding 5 irreducible and gangrenous intussusceptions, the mortality is 15.4 per cent.

48. Id.—Wallace reports on 20 cases, 12 males and 8 females. Nineteen were enterocolic and 1 was of the colic variety. Of the former class 10 were single and 9 were double intussusceptions. The single intussusceptions were of the ordinary ileocecal type. Of the double tumors there were four cases of the enteric-ileocecal type and 5 cases of the ileo-colic-ileocecal type. Of the 16 cases in which a definite statement was made there was a history of improper feeding in only three instances. The extremes of duration before operation were seven hours and four days. The treatment was primary abdominal section. The mortality was 20 per cent. If the cases in which a resection was performed are excluded the mortality falls to 11.11 per cent. Under 1 year of age there were 16 cases, with 3 deaths. The causes of death were: 1, Bursting open of the wound; 2, thrombosis of cerebral veins; 3, gangrene of cecum and inanition, and 4, shock; extensive resection of nearly the whole of the large gut.

The Interstate Medical Journal, St. Louis.

March.

51 Some Thoughts on Exophthalmic Goiter. H. Tuholske, St. Louis.
52 Historic Review of the Development of Knowledge of the Relations of the Mind and the Nervous System. C. G. Chaddock, St. Louis.
53 Cholecystitis. J. L. Wiggins, East St. Louis.
54 Acute Appendicitis. J. M. Grant, St. Louis.
55 *A Simple Heat Method of Sterilizing and Storing Catgut—Preliminary Report. W. Bartlett, St. Louis.

55. Heat Method of Sterilizing Catgut.—A preliminary report is made by Bartlett of his method of sterilizing catgut. The treatment of the raw catgut is as follows: The strands are cut in convenient lengths, say 30 inches, and made into little coils about as large as a silver quarter. These coils are then strung like beads on to a thread so that the whole quantity can be conveniently handled by simply grasping the thread. The string of catgut coils is dried for one hour at a temperature of 180 F. and then for a second hour at 220 F., the change in temperature being accomplished gradually. The catgut is then placed in liquid albolene, where it is allowed to remain until perfectly clear, in the sense that the term is used in the preparation of histologic specimens. This is usually accomplished in a few hours, though it has been Bartlett's custom to allow the gut to remain in the oil over night. The vessel containing the oil is next placed on a sandbath and the temperature raised during one hour to 320 F., and this temperature is maintained for a second hour. By seizing the thread with sterile forceps the catgut is lifted out of the oil and placed in a mixture of iodin crystals, 1 part in Columbian spirits, 100 parts. In this fluid it is stored permanently, and is ready for use in twenty-four hours; the thread is then cut and withdrawn. It is important that the gut should be thoroughly cleared before the oil is heated, in order that the temperature of the center of the strand will be as high as that of the oil outside. Nor should the oil be removed from the gut before placing it in the storing solution, since catgut which is perfectly free from oil is so very sensitive to the action of water that it readily untwists and becomes tangled after it is used in a wound but a few moments. The iodin rapidly permeates the strand, which is found stained black after a few hours, and consequently the surgeon may have the assurance that he is introducing an antiseptic as well as a thoroughly sterile suture material.

The Chicago Medical Recorder.

March 15.

56 *Comparison of the Abdominal and Vaginal Routes for the Removal of Uterine Fibroids. H. T. Byford, Chicago.
57 Fracture of the Patella. W. C. Jones, Chicago.
58 Prevention and Reduction of Deformity in Pott's Disease. C. F. Elkenbary, Chicago.
59 Postpartum Hemorrhage. H. J. Dern, Chicago.
60 Diagnosis of Influenza or Acute Catarrhal Fever. J. R. Ballenger, Chicago.
61 *The Dunbar Antitoxin Method of Treating Hay Fever. Report of Cases. O. J. Stein, Chicago.
62 Pruritus Ani. C. J. Drueck.
63 Myringoplastic Surgery with Exhibition of Case. C. S. Losey, Chicago.
64 *Extirpation of a Carcinoma of the Rectum with Implantation of Bowel into Vagina. J. C. Stubbs, Chicago.
65 When is the Proper Time to Make Collections? W. E. Miller, Chicago.

56. **Uterine Fibroids.**—Whether a uterine fibromyoma or a fibromatous uterus should be removed by the abdominal or vaginal route depends largely on three things, says Byford: 1, The relative danger to the patient; 2, the possibility of completing the operation in a satisfactory manner, and, 3, the surgical training of the operator. Each route has its distinct and evident advantages. In all cases adapted to it, the vaginal route should be preferred on account of its comparative safety. In doubtful cases, particularly in those in which conservative surgery is called for, the abdominal route should be given the benefit of the doubt. Vaginal hysterectomy should be limited to cases in which the size and shape of the lower part of the tumors or uterus are such that the cervix can be pulled down near enough to the vulva to enable the operator to secure, without delay, the uterine arteries on either side of the cervix, as well as the middle hemorrhoidal arteries behind. Unless the uterine mass is very small, adhesions of the adnexa high up in the pelvis constitute a contraindication to the vaginal method, although the cervix itself is comparatively low. One of the chief advantages of the abdominal route is the possibility for conservative surgery.

61. **Dunbar Antitoxin in Hay Fever.**—Thirty-six cases of hay fever treated with Dunbar's antitoxin are reported by Stein. Regarding the remedy more as a prophylactic one, Stein found that in all but a few cases it proved efficient. When used during the height of an attack it usually modifies the severity, but never entirely relieves the patient. In one case the symptoms were easily prevented from developing when the remedy was used in time. One case obtained no relief whatever. In another case the severity of the symptoms was lessened so that the patient was scarcely disturbed. A peculiar feature in this case was that the patient could not use the serum in the eyes without producing considerable redness and swelling of the conjunctiva. To obtain the greatest degree of immunity Stein found that the remedy must be applied before the onset of an attack. When the disorder is once fully established patients do not obtain the relief expected.

64. **Carcinoma of Rectum.**—The lower border of the tumor in this case was about three and a half inches above the anal margin. As a preliminary procedure a hysterectomy was done. About two months afterward Stubbs performed a Kraske operation, removing the tumor by excision. As the severed ends of the gut could not be approximated, Stubbs made an opening through the vault of the vagina, through which the gut was invaginated into the vagina. Convalescence was slow but uneventful, and the patient, aged 57 years, says she has not felt so well in years. Defecation takes place through the vagina. After each morning bowel movement, the patient flushes the vagina and inserts a small cotton tampon, and is comfortable for the next twenty-four hours. The tumor was removed just twelve months ago.

Washington Medical Annals.
March.

66 •Aneurism of the Descending Thoracic Aorta. W. M. Barton, Washington.
67 •Myoma of the Intestine. G. W. Wood, Washington.
68 Position in Placenta Previa. M. F. Thompson, Washington.
69 •Postoperative Intestinal Obstruction. J. F. Mitchell, Washington.

66. **Aneurism of Descending Aorta.**—The death of Barton's patient was caused by a rupture of the sac into the left pleural cavity. The aneurism was not diagnosed until a few hours before the death of the patient. The only symptom was that of pain in the epigastrium, apparently connected with the digestive function. Radiographic examination showed a mass extending from the seventh to the eleventh dorsal vertebræ, but in the presence of persistent epigastric pain, spinal rigidity and exaggerated knee-jerks, a tentative diagnosis was made of Pott's disease, and the patient was treated accordingly. Later exploratory operation was advised on the theory that the tumor was a gastric neoplasm. The operation was performed with the result mentioned. The total length of the sac was seven inches, and it has caused erosion of the bodies of the seventh, eighth, ninth and tenth dorsal vertebræ. The shape of the aneurism was almost cylindrical. Its wall contained two perforations.

67. **Myoma of Intestine.**—Wood reports a case of this kind which was diagnosed as an appendicitis, the tumor being located in the right lower abdominal quadrant. An incision was made, about a pint of pus escaped, but a concretion and gangrenous mass was all that showed where the appendix had been. The patient recovered, but six months afterward the wound began to suppurate. It was opened again and a number of small calcareous masses were removed. Later she had chills and a swelling developed over the liver, which was diagnosed as an abscess of the liver. An operation substantiated this view. At the autopsy a tumor was found binding together the ileum and duodenum. A normal appendix was also found and there was no evidence of appendicitis.

69. **Postoperative Intestinal Obstruction.**—Mitchell has had two cases of intestinal obstruction following operation in a series of 36 cases, both these cases occurring in patients in whom the appendicitis had gone on to the stage of abscess formation. Both cases terminated successfully without operative intervention. Mitchell says that many cases can be relieved by palliative measures, but that operation should not on this account be delayed; the operative procedure should be as simple and as rapidly executed as possible.

Archives of Pediatrics, New York.
March.

70 •Case of Pulmonary Osteoarthropathy Limited to the Terminal Phalanges in a Child. D. J. M. Miller, Philadelphia.
71 Acute Pyelitis of Infancy; report of a case. R. G. Freeman, New York City.
72 •Lesions of the Upper Air Passages Due to Hereditary Syphilis. J. C. Sharp, New York City.
73 Umbilical Cord Hernia. J. P. Crozer-Griffith, Philadelphia.
74 •Causes of Incontinence of Urine in Children. J. R. Clemens, St. Louis.

70. **Pulmonary Osteoarthropathy.**—The case cited by Miller was that of a girl 8 years old who had a marked kyphosis embracing the first seven dorsal vertebræ with a compensating anterior curve from the latter to the sacrum. The thorax was quite prominent, the ribs distinct, and the sternum pushed forward. There was a marked rosary distended abdomen and emaciated arms and legs. The facial expression was that of an old woman. The urine was normal; the temperature from 99 to 101 F.; there was hectic flush, cough and signs of general bronchitis. The terminal phalanges of the fingers were markedly clubbed, the nails curved like a parrot's beak, elevated, of a rosy red hue and brittle. The fingers were long, and from hyperextension and enlarging of the terminal phalanges, resembled closely a drumstick. The toes presented conditions similar to those of the fingers, but very much less marked. There was no thickening of the radii, ulnæ, tibiæ or fibulæ; the joints were entirely unaffected, nor had there ever been any pain in the latter or in the deformed fingers. The face was broad and the head large and square, the malar bones prominent and the teeth carious. Examination of the lungs was positive. The case is cited as one of true osteoarthropathy, the deformities being limited to the distal phalanges in contradistinction to the club finger of chronic heart and lung affections. At the autopsy there was found marked interstitial pneumonia and purulent bronchitis, lesions sufficient to account for the phalangeal changes observed during life.

72. **Syphilis of Upper Air Passages.**—Sharp makes it a practice to give a course of antisyphilitic treatment to all young children with hypertrophy of the cervical and submaxillary nodes. He believes that cases of hereditary syphilis of the upper air passages are often erroneously diagnosed as cases of tuberculosis. All children suffering from enlarged cervical nodes are not the victims of hereditary syphilis, but by giving them the treatment early he thinks they are rendered less susceptible to serious illness. He says that many cases of postpharyngeal abscesses are caused by hereditary syphilis, but advises great caution in arriving at a diagnosis of this or of any other ulcerative condition of the upper air passages. The clinical appearances of ulcerations in hereditary syphilis in the mouth and pharynx differ very slightly from those of a

tertiary ulceration, except that in the latter there is more infiltration of the surrounding tissues. Gumma of the trachea is rare. When a child presents itself with a history of dyspnea a differential diagnosis must be made between papilloma of the trachea, tubercular infiltration or abscess and gumma. Ulcerations of the upper air passages due to hereditary syphilis may exist when none of the classical symptoms considered necessary to a diagnosis of the disease are present, viz.: Hutchinson teeth, keratitis and the frog-like appearance of the face due to the flattening of the bridge of the nose.

74. **Incontinence of Urine.**—In Clemens' experience the four commonest causes of incontinence of urine in children, in the order of their frequency, are: 1, Hyperacidity of urine (persisting by day and night); 2, adenoids (nocturnal incontinence—true eneuresis); 3, chronic interstitial nephritis (nocturnal and diurnal incontinence); 4, alkalinity of urine (due to fixed alkalies—incontinence by day and night). In some 148 cases Clemens has used belladonna and has been successful in all except those due to organic disease such as nephritis, and in some cases of hyperacidity or alkalinity, where the pendulum of urinary reaction in primary cases of hyperacidity swings too far over to the alkaline side, the converse obtaining in those primary cases of alkalinity. The great difficulty lies in bringing about just sufficient neutralization and keeping it constant. These are the cases that prove so disappointing.

Medical Examiner and Practitioner, New York.

February.

75 The Pulse in Life Insurance. E. F. Morrill, Chicago.
76 The Medical Department in Its Relation to Life Insurance Selection. C. L. Greene, St. Paul.
77 The Use of Intoxicating Liquors and Life Insurance. T. Milliman, Toronto.
78 The Medical Director—His Responsibilities. H. A. Warner, Topeka, Kan.
79 Should Accidents be Considered a Factor in Life Insurances? B. E. Jones, Kansas City.
80 Location in Its Bearing on Life Insurance. Ira W. Porter, Omaha.

Indiana Medical Journal, Indianapolis.

March.

81 Treatment of Gonorrhea. F. C. Valentine and T. M. Townsend, New York City.
82 Diagnostic Value of the Reflexes. E. C. Reyer, Indianapolis.
83 Headaches of School Children. F. A. Morrison, Indianapolis.
84 Efficient and Painless Method of Skin-Grafting. B. Caffee, Terre Haute.
85 Health Conditions on the Isthmian Canal. I. Dyer, New Orleans.

The Medical Standard, Chicago.

March.

86 Uric Acid Calculus—Its Clinical Significance. B. Robinson, Chicago.
87 The Importance of an Early Diagnosis and Prompt Surgical Treatment of Cholecystitis With or Without Stone. B. Holmes, Chicago.
88 Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
89 Diphtheritic Paralysis. M. McGorry.
90 Bladder Troubles in Actual Practice. J. E. Beatty.
91 Present Status of Malignant Tumors. H. Taylor.

Albany Medical Annals.

March.

92 Pathology and Bacteriology of Acute Meningitis. W. T. Councilman, Boston.
93 Symptoms and Diagnosis of Cerebrospinal Meningitis. H. L. Elsner, Syracuse.
94 Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
95 The Eye Symptoms of Cerebrospinal Meningitis. A. E. Davis, New York City.

The New York State Journal of Medicine, New York City.

March.

96 Pneumonia. A. Lambert.
97 Health of the Nation. W. Wyman, Washington, D. C.
98 Health of New York City. T. Darlington, New York City.
99 Health of the Port of New York. A. M. Doty, New York City
100 Health of the State of New York. D. Lewis.
101 Ocular Reflexes. S. W. S. Toms, Nyack, New York.

Pennsylvania Medical Journal, Athens.

February.

102 Need for Systematic Study of Individual Characteristics as Manifested by Organism's Reaction to Sensory Stimuli. W. K. Walker, Dixmont.
103 Practical Points Concerning Smallpox. Wm. M. Davis, Pittsburg.
104 Tests for Occult Blood in the Feces and Their Clinical Significance. J. D. Steele, Philadelphia.
105 Paraffin as a Surgical Medium. M. D. Ritchie, Pittsburg.
106 Twelve Years of Emergency Surgery. E. E. Wible, Munhall, Pennsylvania.
107 Disease of the Blood-Vessel System as the Underlying Cause of Nervous Diseases. T. Diller, Pittsburg.
108 Early Diagnostic Signs of Cancer of the Uterus. F. Blume, Pittsburg.

Denver Medical Times.

March.

109 Pregnancy Complicated by Tumors of the Uterus. D. S. Fairchild, Des Moines.
110 Remarks on the Pancreas. B. Robinson, Chicago.
111 Hygiene of Pregnancy and Labor Directions. T. M. Burns, Denver.

St. Louis Courier of Medicine.

February.

112 Baby Incubators on the Pike. J. Zahorsky, St. Louis.
113 Cystitis. C. C. Thayer, Clifton Springs, N. Y.
114 Bronchiectasis in a Four-Year-Old Child. J. R. Clemens, St. Louis.

The Post-Graduate, New York.

March.

115 Case of Unilateral Annular Scleritis. D. B. St. John Roosa, New York. With Report of the Pathologic Examination. L. Oatman, New York.
117 Case of High Myopia with Successful Operation. P. E. S. Peck.
118 Case of Supracondylar Fracture of the Humerus with Musculo-Spiral Paralysis. F. Hawkes.
119 Operative Treatment of Fractures in General. W. S. Bickham, New York City.
120 Treatment of the Consumptive Poor as Carried on at the Post-Graduate Hospital Dispensary from the Year 1898 to 1905. D. M. Barstow, New York.
121 Advantages of Prompt Surgical Interference in Acute Otitis Media. R. Opdyke.
122 Case of Acute Pott's Disease at the Twelfth Dorsal Vertebra in an Adult. A. F. Chase, New York.

Kentucky Medical Journal, Louisville.

March.

123 Importance of the Establishment of a Detention and Isolation Hospital for Contagious and Infectious Diseases, and also the Necessity for the Institution of a Sanatorium for the Care and Treatment of Tuberculosis in the City of Louisville. M. K. Allen, Louisville.
124 Isolation and Detention Hospitals for Country Districts. A. T. McCormack, Bowling Green, Ky.
125 Ventilation of Public Buildings. E. H. Mark, Louisville.
126 Need of Municipal and State Laboratories. V. Robbins, Louisville.
127 Problem of the Milk Supply of Cities. H. E. Tuley, Louisville.
128 Obligation of the Physician in Attendance on Patient with Infectious Diseases—Practical Methods for Preventing the Carrying of Infection—Methods of Disinfection for Hospitals, for Private Houses and for the Clothing and Person of Exposed Individuals. P. F. Barbour, Louisville.
129 Prevalence and Mortality of Smallpox in Countries Protected by Compulsory Vaccination Compared with Same in America. J. T. McClymonds, Lexington, Ky.
130 Differential Diagnosis of Smallpox. J. I. Whittenberg, Louisville.
131 Operation of Vaccinaton.—How It Should Be Performed to Be Most Effective and Least Dangerous—Imperfect Methods at Hands of Physicians Responsible for Failure of Protection—Bovine and Human Virus. A. Dixon, Henderson, Ky.
132 Contribution by the Kentucky State Board of Health: Rules and Regulations for Management of Smallpox, etc.
133 Differential Diagnosis of Diphtheria. D. M. Griffith, Owensboro, Ky.
134 Mortality of Diphtheria Before and Since the Introduction of Serum Therapy. A. O. Pfingst, Louisville.
135 Scarlet Fever—Has Its Causative Agent Been Isolated and Identified? Differential Diagnosis. J. G. Cecil, Louisville.
136 Typhoid Fever Prophylaxis. L. Southgate, Covington, Ky.
137 Tuberculosis—What is Being Done to Prevent Its Transmission? J. A. Flexner, Louisville.
138 Bovine Tuberculosis and Its Relation to Public Health. F. T. Eisenman, Louisville.
139 Prophylaxis of Venereal Diseases. J. T. Windell, Louisville.
140 Contagious Eye Diseases. J. M. Ray, Louisville.
141 Sanitation in Cuba—The Abolition of Yellow Fever—Malaria —Problems to Be Met in Construction of Panama Canal. W. Bailey, Louisville.

Vermont Medical Monthly, Burlington.

January 25.

142 Etiology and Pathology of Pneumonia. S. M. Chisholm, Bennington, Vt.
143 Erythema Nodosum. William Lindsay, Montpelier, Vt.
144 Case of Epilepsy. E. J. Melville, St. Albans, Vt.
145 Treatment and Control of the Tuberculous Patient in His Home. Lawrence F. Flick, Philadelphia.

Alabama Medical Journal, Birmingham.

February.

146 Address. Jefferson County Medical Society. L. G. Woodson, Birmingham.
147 Etiology, Pathology and Public Prophylaxis of Tuberculosis. K. von Ruck, Asheville, N. C.
148 The "Open Air" or "Hygienic-Dietetic" Treatment for Consumption. E. A. Jones, Raton, N. M.

The Texas Medical News, Austin.

February.

149 Carbolic Acid. R. W. Skipper, Lovelady, Texas.
150 Trachoma. Crittenden Joyes, Fort Worth.

Pacific Medical Journal, San Francisco.

March.

151 A New Clinical Chart. H. D. Power, San Francisco.
152 Home Rules for a Doctor's Happiness. E. Wescheke, Oakland.
153 Typhoid Fever. Winslow Anderson, San Francisco.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

March 11.

1 Myasthenia Gravis. J. Taylor.
2 New Methods of Studying Affections of the Heart. J. Mackenzie, Burnley.
3 *Some Practical Aspects of Conjunctival Bacteriology. F. Fergus, Glasgow.
4 *Case of Acute Endocarditis Due to the Micrococcus Gonorrhea. W. Hunter, Hong Kong.

3. Conjunctival Bacteriology.—Fergus urges that bacteriology should be in daily use in every eye clinic: First, because it is an important aid to diagnosis, as the classification of conjunctival inflammation is becoming more and more a bacteriologic one. Second, because it is a guide in determining the safety of any operation. Disaster can often be prevented by a thorough bacteriologic investigation before attempting to operate. Third, because it materially influences our views of treatment. Prophylaxis is a matter of the first importance. The teachings of modern bacteriology give us important indications as to when an eye should or should not be bandaged. A bandage retains septic secretions, although sometimes it is of use in preventing an ulcer from becoming ectatic.

4. Gonococcus Endocarditis.—Hunter reports a case which is of interest from several points of view. It is an additional proof of a direct infection of the endocardium by the gonococcus. The subject of the disease presented well-marked pathologic changes throughout the genital tract. The lesions were clinically very suggestive of old gonorrheal infection. The specific micrococcus could not be demonstrated owing to the presence of many other micro-organisms. The aortic valve of the heart was the seat of the endocarditis, and the inflammatory process was of a distinctly malignant character.

The Lancet, London.

March 11.

7 Peritonitis, a Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
8 Changes Produced by Inflammation in the Conjunctiva. M. S. Mayou, London.
9 Toxic Mental Disorders. G. H. Savage.
10 *Diagnosis and Treatment of Hypertrophy of Pylorus in Infants. G. F. Still.
11 Acute Ascending Paralysis in Cases of Chronic Cystitis. T. J. Walker.
12 Further Notes on the After-history of Cases of Pyloroplasty. G. G. Turner.

10. Hypertrophy of Pylorus in Infants.—Of 20 cases seen by Still 17 were in males and 3 in females. Only 1 case began as early as the third or fourth day, and only 3 others within the first week. The symptoms very rarely date from birth. Of his own cases, 12 certainly, and 1 other probably, dated symptoms (vomiting) from before the end of the fourth week; in the remaining cases vomiting began between the fourth and the end of the seventh week. He has never seen a case in which vomiting began later than this. Vomiting *per se* is not characteristic of congenital hypertrophy of the pylorus. It is, however, the symptom which in most cases suggests the presence of this condition, but it is only when it is associated with the characteristic signs, the physical peristalsis of the stomach and the palpable thickening of the pylorus that it becomes diagnostic. Features of the vomiting which are suggestive of the disease are: 1, Its forcible character; 2, its occurrence in an infant who has been carefully fed; 3, its persistence in spite of such alterations of feeding and such general treatment as will usually control the vomiting of dyspeptic conditions. Its large amount shows that the vomit represents more than one feeding. The association of chronic constipation with this persistent vomiting is of some importance in diagnosis. Examination of the abdomen for the true characteristic signs, visible peristalsis of the stomach and palpable thickening of the pylorus, must be carried out very carefully. It must be recognized also that these two signs are only present at intervals, so that cursory inspection and palpation of the abdomen may result in overlooking the condition altogether. The abdomen should be examined immediately after the infant has been fed, and it is well also to watch the abdomen during the taking of the food. Still says that no doubt the diagnosis can be made with all but certainty from the visible well-marked peristalsis of the stomach alone, but that in every case the evidence should be clinched by feeling the thickened pylorus. If the disease were incurable by other than far less dangerous methods, says Still, we might well accept the chance that surgery offers, but there are cases in which no operation is necessary, and there are other cases in which the child's chance of surviving operation may be greatly increased by the use of simpler measures for a time until the infant is in a better position for operative treatment. Much time and much care must be given the case for many weeks if the infant's life is to be saved. Many cases are improved temporarily by change of diet, but it is probably very rarely that a cure can be effected by such treatment alone. Stomach washing is the method which, apart from operation, promises to be of most value. It is Still's opinion that when careful feeding with some thin fluid, such as whey and raw meat juice, after a trial of a few days, fails to arrest the loss of weight, stomach washing should be given a trial in every case, the duration of its trial to be determined by the effect on the weight. The stomach is washed out twice daily for several weeks just before a feeding, and once daily for some weeks longer with a solution of sodium bicarbonate, 2 grains to the ounce, through a Jacques soft-rubber catheter, No. 12 or 14. The frequency of the washings and the duration of the treatment depend on the improvement in the vomiting and especially on the weight. Two of his cases recovered under this treatment. In many cases stomach washing was not tried or was given up because it was assumed that the condition was incurable without operation. Before any definite data can be obtained the treatment advised must be given a more extensive trial.

Journal of Tropical Medicine, London.

March 1.

13 *Use of Cyllin in Sprue. W. Hartigan.
14 Breeding and Rearing of Foreign Cattle in the Tropics. P. N. Gerrard.
15 Relative Position of Schistosoma Cattoi and "Bilharzia" as Regards Pathogeny. G. L. Crimp.

13. A New Remedy in Aphthae (Sprue).—Sprue, says Hartigan, is a complaint so baffling, so difficult to cure, recurring so frequently after apparent recovery, that any hint as to its treatment is worth recording. The disease shows itself in various forms, and many seemingly favorable cases prove most intractable, while others make rapid and complete recoveries. In the majority of cases which quickly respond to treatment the disease is confined to about the lower eighteen inches of the bowel, while in the intractable cases the upper portion of the colon and probably lower part of the ileum are involved. Hence, in the former, the almost certain efficacy of copious antiseptic lavage, while in the latter they have little or no effect on the actual course of the disease. Little is known of the etiology of sprue. Its fatality is due to inability to assimilate food. The usual symptoms are wasting, sore tongue and frequent and abundant frothy stools. The patients are unable to take the mildest or simplest nourishment on account of the pain caused to the mouth and tongue and the almost immediate evacuation thereby brought on. The value of antiseptics applied locally to the bowel has been proved. Boric acid, however, produces headaches and increases digestive troubles. Carbolic acid is ill-borne; salol makes the stools more healthy, but does not cure the disease; perchlorid of mercury and naphthol are inefficient. Cyllin, a new disinfectant of the cresol series, given in the form of intestinal platinoids, 3 m. cyllin in each, is well borne, the number of stools rapidly diminishes, the bowels are regulated, and the general condition of the patient improves. The platinoids may be given every second hour if necessary, but rarely more than eight a day are required. They are best given an hour after food. All pain and tenderness over the lower part of the abdomen disappear; there is a steady increase in weight, and the patient is soon able to return to the ordinary diet. The cases treated solely by rest and milk diet take a much longer time to get

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well, and their recovery is often not complete. Relapses, particularly on returning to a hot climate, are frequent.

Bulletin de l'Académie de Médecine, Paris.

Last indexed page 991.

16 (Year LXIX, No. 7.) Emploi du perborate de soude (eau oxygénée à l'état naissant) dans la pratique oto-rhino-laryngologique. M. Bloch.
17 *Nouveau biberon gradué (graduated nursing bottle). Variot.
18 *Traumatisme et tuberculose; influence des mouvements sur l'évolution des ostéo-arthrites tuberculeuses. Lannelongue and Achard.
19 *Fièvre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
20 Fièvre typhoïde à début brusque, ayant simulé d'abord l'appendicite, puis la granulie. Mort. A l'autopsie ni appendicite, ni méningite, mais lésions de fièvre typhoïde avec péritonite par propagation. A. Josias.
21 (No. 8) *Solubilité de la cholestérine dans la bile et ses principes sur l'origine des calculs biliaires. E. Gérard.
22 *Crachoirs (cuspidors). Fournier.
23 *Fièvre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
24 Transmission héréditaire homeomorphe d'un rétrécissement mitral de la mère à un fétus mort-né de six mois (inherited mitral stenosis). Bolnet.
25 (No. 9.) *Quelques propos sur la paralysie générale de la syphilis. Fournier. (Commenced in No. 8.)

17. Graduated Nursing Bottle.—The graduated scale of the amount of milk the infant should have at different ages is stamped in relief on the bottle. Variot compiled his scale from comparison of the results of researches of Russian, German and Austrian confrères and those of Emmett Holt of New York and Morgan Rotch of Boston, controlled by extensive personal research. His scale is as follows:

First week	30 gm.
Second week	45 gm.
Third week	60 gm.
Fourth week	75 gm.
Sixth week	90 gm.
Ninth week	105 gm.
Third month	120 gm.
Fourth month	135 gm.
Fifth month	160 gm.
Seventh month	180 gm.
Ninth to twelfth month	200 to 220 gm.

The bottles are made in two sizes. The first is stamped with the scale up to the third month, and the larger bottle with the rest of the scale. The intervals between meals are also stamped beside the scale, and the number of meals, corresponding to the age of the infant. These graduated bottles have been found very practicable to use instead of ordinary milk bottles, and milk is distributed regularly in them at several French charity milk stations.

18. Traumatism and Tuberculosis.—Lannelongue and Achard emphasize the danger of exercising a joint which is the seat of a tuberculous affection. Their experiences with a number of animals showed that inoculation with pure cultures of tubercle bacilli, followed by traumatism of a joint, did not entail the localization of the infectious process in the injured joint. If the inoculation was made with pus or sputa, however, the traumatism invariably resulted in the production of a suppurative lesion in the injured joint. These results harmonize with what is observed in the clinic. The blood of a tuberculous subject is rarely virulent, and a local injury of a bone or joint is seldom followed by the development of a local focus of tuberculosis. Further experiments showed that a joint inoculated with tuberculosis remained latent or healed when the joint was kept at rest, but if it was gently mobilized even for five minutes twice a day the surfaces of the joint and the ends of the bones developed serious lesions and contracture in less than a month. Nothing of the kind occurred in the controls nor in the animals whose joints were kept at rest except for a single blow from a hammer once. These findings demonstrate the absolute necessity for immobilization of tuberculous joints, with or without extension, and they emphasize the evils of leaving a tuberculous joint free to be used at will, and especially the dangers of exercising the joint to increase its functional play.

19. Yellow Fever and Mosquitoes.—Chantemesse and Borel review the various epidemics of yellow fever that have occurred in Europe, and show how they all fit into the frame of our knowledge of the habits of the stegomyia. The 43d parallel of latitude has always been recognized as the northern limit of yellow fever in Europe. Sailing vessels are liable to be weeks traversing the torrid zone. This allows the stegomyia time to breed and yellow fever appears on board in successive series of cases. Steam vessels, on the other hand, traverse the torrid zone quickly and bring the stegomyia into a climate unfavorable for its propagation so that the vessels are practically sterile when they enter a northern harbor.

21. Solubility of Cholesterin.—Gérard describes research on the solubility of human cholesterin in beef bile and in the bile salts, and on the influence of lecithin, soap, etc., on this solubility. He ascribes biliary lithiasis mainly to the action of the colon bacillus. As this bacillus penetrates into the gall bladder it hydrolyzes, that is, draws out the water from the biliary salts, acting specially on glycocol and taurin, and thus precipitating the cholesterin which these salts had been holding in solution.

22. Wax Paper Cuspidors.—Fournier's new inexpensive models are made of paraffined cardboard and contain a little powdered charcoal. They are made to fit into a special standard if desired. They are burnt and fresh ones provided as needed.

23. Prophylaxis of Yellow Fever.—Chantemesse regards yellow fever as not contagious in France, owing to the absence of the stegomyia. There have been less than fifty cases in a century. Ships arriving from an infected country with a clean bill of health or even with one or two cases of yellow fever evidently contracted in some foreign port, may be given the freedom of the port. But a series of cases occurring on the trip compel more rigorous measures, and the ship should be fumigated, especially if a sailing vessel. The sick should be taken to the isolation hospital or to the ordinary hospital. A ship entering an infected port should anchor to windward of the shore. The crew should never be allowed to sleep on shore, and all the men coming on board should be examined afresh every morning. Everything on the ship containing water in which mosquitoes could possibly deposit their eggs should be kept scrupulously clean and watched daily. The cargo is seldom a source of danger unless it contains damp wood, bananas or fresh fruits. A ship carrying a cargo of this kind must carry on an active campaign against mosquitoes, and the physician should refuse to allow any sick with yellow fever on board when the ship is ready to leave, although convalescents can be received. During the trip, the inhabited quarters should be aired and ventilated incessantly to drive out mosquitoes, especially the hot kitchens, engine rooms, etc. If a case of yellow fever develops the patient must be kept under mosquito netting for three days.

25. General Paralysis of Syphilis.—Fournier has a record of 112 cases of syphilis in which the date of the primary sore and of the development of general paralysis later is positively known. The shortest interval was three years. In more than four-fifths of all cases the paralysis developed between the sixth and the fifteenth years, with the overwhelming majority at the tenth year. In 223 cases of cerebral syphilis with a hemiplegic onset, the first cerebral symptoms were noted during the first year in 25, during the second year in 26, during the third year in 39, and during the fourth year in 29, fully two-thirds of all the cases thus developing during the first five years. There was a record of insufficient antisyphilitic treatment in nearly every case, and in 15 out of the 112 cases there were certain other predisposing or adjuvant causes, worry in 8 cases, abuse of liquor in 5, great venereal excesses in 3, and decided nervous heredity in only 2. A significant fact brought out by his researches is that the early syphilitic infection in these cases of general paralysis had been almost invariably mild. Investigation of 243 cases of early malignant syphilis failed to disclose a single instance of general paralysis in this group, although other nervous manifestations were frequent. Out of 112 patients with general paralysis in private practice, all belonging to the educated and well-to-do class, only 5 had taken a systematic course of antisyphilitic treatment. Fournier qualifies these figures as disheartening and encouraging at the same time. They are encouraging because they show that systematic antisyphilitic treatment will reduce the number of cases of general paralysis later, but they are disheartening, as they reveal that even a well-conducted, sys-

tematic course of treatment will not infallibly protect against general paralysis later in every instance. He has records of 19 patients who had children before the advent of the general paralysis, and the 41 children show no trace of inherited syphilis. The birth of healthy children is not a certain sign of immunity for the father. Fournier's experience with treatment of general paralysis has been invariably unfavorable. He has conferred with neurologists and alienists and all say the same. Brissaud and Marie have pushed the dosage to the extreme limits without any better results, the former giving up to 14 cg. of mercury benzoate a day without benefit. Mercurial treatment does no good in general paralysis, and it is liable to do harm. Fournier thinks that the present technic of mercurial treatment does not accomplish as much as it should. He is convinced that greater benefit would be obtained if the four years of mercurial treatment were fractioned. He advises a series of energetic courses of mercurial treatment at the onset of the infection, kept up for two years, with occasional intermissions. Then suspend treatment for two years, and devote the fifth year to a second course of treatment. Then suspend treatment again and devote the seventh or eighth year to renewed vigorous treatment. The first two years' course generally suffices to arrest the early manifestations of the malady and to induce the secondary lull. Fournier is becoming more and more convinced that it is with mercury as with vaccination, the effects are outgrown in time, and revaccination and remercurialization are needed. This method of "chronic mercurial treatment at tardy terms" seems to offer the most and best guarantees for prevention, but it should always be accompanied by hygiene and by avoidance of overexertion, nervous strain and other causes liable to induce a predisposition to nervous affections. He cites as an instance in point the case of a robust young man with recent syphilitic infection who acquired a syphilitic myelitis a few days after a mad bicycle race from Paris to Amiens and back again. Although vigorously treated, his paraplegia soon proved fatal. Another syphilitic had a hemiplegic attack after excessive study for examinations. It subsided under mercurial treatment, but returned at the next annual examinations and proved permanent. Another patient was a physician who had contracted syphilis in his professional work. He was a great brain-worker, and prophesied that his syphilis would finish in the brain, as it did. Syphilitics should be advised from the first to lead peaceful, regular lives, in the country, if possible, with frequent vacations, reducing to the minimum all the stimulations liable to switch the diathesis toward the nerve centers. It may be possible to tranquillize the nerves from time to time by a prophylactic course of bromids—the author leaves this to the neurologists—but he is confident that cold or tepid hydrotherapy is a valuable adjuvant in the prevention of nervous affections of any kind. He orders it as a routine measure for all his syphilitics, to be kept up indefinitely. Of all the dangers possible with syphilis the most serious and the most numerous are those emanating from the nervous system. Out of a total of 5,749 tertiary manifestations, presented by 4,400 patients, 32 per cent. involved the brain, the spinal cord or the nerves, that is, one case in every three of tertiary accidents.

Semaine Médicale, Paris.

26 (XXV, No. 8, February 22.) *La névrite ascendante consécutive à l'appendicite. F. Raymond and G. Guillain.
27 Peruvian Balsam in Treatment of Wounds and Atonic Ulcers.—Mode d'emploi du baume du Perou dans le traitement des plaies et des ulcères atoniques. Bohdanowicz (Nice).
28 (No. 9.) *Sur l'anaphylaxie. R. Lépine.
29 *Traitement des plaies par écrasement de la main (crushing wounds of hand). F. Lejars.
30 La tabagisme professionnel chez la femme au point de vue de la reproduction (professional tobacco poisoning in women).

26. Ascending Neuritis Following Appendicitis.—Raymond comments on the scantiness of literature on the subject of the nervous sequels of appendicitis. He has recently had occasion to observe a typical example of ascending neuritis with unmistakable causal relations to preceding appendicitis. The patient was a mason, 39 years old, who had had four attacks of appendicitis in a year and a half. Eight or ten days after the first symptoms of the first attack violent pains were experienced in the right thigh, suggesting crural neuralgia. The pains subsided with the symptoms of the appendicitis, but recurred in the form of sciatica during the second attack of appendicitis. They subsided again, but left a certain discomfort in walking. During the third attack of appendicitis pains developed in the calf of the right leg with formication in the foot and limping, and the limb became emaciated. At the third attack the crural and sciatic pain recurred, more intense than ever, and pain was also experienced in the region of the left sciatic. The appendix was removed, but the pains persisted and the legs became paralyzed, the trouble being most pronounced in the right leg. As the paralysis increased, the spontaneous pains subsided, but the legs were painful to pressure. The neuritis had involved the crural, the obturator and the sciatic nerves, with atrophy in the regions innervated by them. The question of ascending neuritis and of infections of the central nervous system by the route of the peripheral nerves is very important in general pathology. Raymond is confident that the nerves can transmit infections, that microbes and toxins can pass to the spinal cord by way of the nerves, their ascending progress being little barred by the anatomic barrier offered by the nerves. This assumption explains many cases of myelitis or neuritis whose origin has hitherto been a mystery.

28. Anaphylaxis.—After a drug or toxin has been administered, conditions return afterward to normal or there is a cumulative action of the drug inducing immunity to the same dose—what might be called prophylaxis—or a third condition may result, the reverse of the last, to which the term anaphylaxis may be applied. In the latter condition the subjects are rendered more sensitive to the same or a smaller dose. The anaphylactic action is most pronounced when an interval of three weeks at least elapses between the first and second dose. Grippe seems to have an anaphylactic action, predisposing to later attacks, as also certain streptococcus affections. The tuberculin reaction may be of the nature of anaphylaxis.

29. Treatment of Crushing Wounds of the Hand.—Lejars remarks that any attempt to wash the crushed hand of a laboring man results in a little cleaner hand, but with the wound much dirtier. He advises applying an Esmarch tourniquet, under general anesthesia, and then protecting the wound with gauze. The surrounding skin is then cleansed with ether or benzine, proceeding from the edge of the wound backward, scrubbing with tampons or a brush moistened with the benzine or soap solution. When this has been done, the wound is examined. It is neither washed, scrubbed nor rubbed. With forceps and compress the foreign bodies are removed, with débris of all kinds and all unattached fragments. It is not necessary to be too economical of fat, muscle or even bone, but the parts that do not grow again readily—the skin and tendons—should be carefully saved. The future functional use of the parts that do not grow again readily—the skin and tendons—in saving parts doomed to contracture and non-function later. The tourniquet is then removed and the hemostasis attended to, the parts well exposed. A little more blood may be lost, but the surgeon now knows his wound and can watch over it effectually later.

Mitteilungen a. d. Grenzgebieten, Jena.

Last indexed page 253.

31 (XIV, No. 3.) *Origin of Inflammatory Hyperemia.—Die Entstehung der entzündlichen Hyperämie. C. Ritter (Greifswald).
32 Stricture in Intestines After Experimental Interruption of Mesenteric Blood Supply.—Ueber Darmstrikturen nach Unterbrechung der mesenterialen Blutzufuhr. H. Schloffer.
33 *Ueber die Hodgkinsche Krankheit (pseudolenkemia). F. Warneke.
34 Ein Protozoen-Befund in einer erkrankten Parotis. A Tietze (Breslau).
35 *Functional Value of New-formed Capsule of Kidney After Decapsulation.—Untersuchungen über den funktionellen Wert der sich nach Entkapselung neubildenden Nierenkapsel. J. H. Zaaijer (Amsterdam).
36 Zur Pathologie der Basedowschen Krankheit. H. Passler.
37 Hernia in Linea Alba Without Objective Findings.—Bauchbrüche in der weissen Linie ohne objektiven Untersuchungsbefund. H. Mohr.
38 *Ueber Rachitis tarda. H. Curschmann (Erb's clinic, Heidelberg).

31. Cause of Hyperemia in Inflammations.—Ritter's research has confirmed the assumption that inflamed tissues attract and hold the arterial blood while the venous blood is expelled.

He ascribes this to the change in the osmotic conditions induced by the bacterial products and the consequent injury of the tissues. The arterial blood is attracted most, as it has a lesser osmotic pressure than venous blood. One of the features that distinguish a "hot" from a "cold" abscess is the abnormally high freezing point of the former. The freezing point in a "cold" abscess is normal. This difference in the freezing point explains the inflammatory hyperemia observed in the "hot" abscess. The change in osmotic pressure attracts the arterial blood.

33. **Pseudoleukemia.**—Warneke describes the pathologic anatomic findings in 4 cases of pseudoleukemia and of a number of extirpated "malignant lymphomata" on the neck or axilla. The microscopic findings were strikingly alike in all. No virulent tubercle bacilli were found in the lesions. The frequent association of pseudoleukemia with tuberculosis is, he thinks, merely a casual coincidence. The cases of Hodgkin's disease and the lymphomata all belong in the category of pseudoleukemia. He sifts the literature on the subject of Hodgkin's disease, and enumerates the constant findings: the swelling of the entire lymphatic apparatus, the nodule formation in the lymphadenoid preformed tissue of the organs, especially of the spleen, giving it the "appearance of red porphyry," the remarkable variability of the cells, all kinds mixed together, with predominant epitheloid cells, fibroblasts and giant cells, some resembling the bone marrow giant cells.

35. **Functional Value of New-Formed Capsule After Decapsulation.**—The conclusions deduced from considerable experimental work on rabbits are favorable on the whole. When the animals were killed four weeks after the decapsulation the anastomoses between the kidney and the capsule did not have the total capacity of the normal vascular conditions, but at some parts had locally a greater capacity. This occurred especially at the points where the kidney had been more injured. Five series of experiments were made: *a*, ligation of the renal artery with kidney intact and removal of kidney three or five days later; *b*, decapsulation of kidney and its removal after five days; *c*, decapsulation of kidney and simultaneous ligation of renal artery. Removal of kidney after two or five days; *d*, decapsulation of kidney with ligation of renal artery four weeks later and then removal of kidney after five days; *e*, half-decapsulation of kidney with ligation of renal artery four weeks or twenty-three days later, and removal of kidney after five days. In series *c* little influence on the process of necrosis could be detected, but under especially favorable circumstances a new capsule developed so rapidly and grew so intimately into the kidney that an important intermediary zone was formed, with a zone of demarcation. In series *d* the fibrous capsule became regenerated almost *ad integrum*. It was more closely adherent to the kidney than normally. Little islands of living parenchyma were found close to the capsule, the tissues evidently receiving extra nourishment from the capsule at these points.

38. **Tardy Rachitis.**—Curschmann warns that all vague disturbances in gait at puberty should not be summarily attributed to a spinal affection without first weighing the possibility of tardy development of rachitis. He reports a case of this kind. In another case he found an apparently monosymptomatic *genu valgum adolescentium* as the sole but unmistakable sign of tardy rachitis. He advocates treatment of the possibly underlying rachitis as a routine measure in cases of genu valgum and genu varum in persons between puberty and 20, putting them all on phosphorus and cod-liver oil, and keeping them in bed, with possibly hydrotherapy. These measures are particularly urgently indicated in incipient cases and will always prove a useful adjuvant to surgical or orthopedic measures. His 3 patients were a girl of 18 and 2 young men.

Zeitschrift f. Krebsforschung (for Cancer Research), Berlin.
Last indexed XLIII, page 36.

39 (II. No. 1.) *Natural History of Malignant Disease According to Clinical Experience.—Zur Naturgeschichte der Krebskrankheit nach kl. Erfahrungen. W. A. Freund.
40 Beobachtungen über Radium. M. Einhorn (New York).
41 Experimentelle Tierversuche mit Plasmodiophora brassicæ und Synchytrium taraxaci nebst Beiträgen zur Kenntnis des Letzteren. W. Loewenthal (von Leyden's cancer clinic, Berlin). Results negative.
42 *Two Cases of Chorioepithelioma in Men.—Fall von Chorioepitheliom beim Manne. H. Dillmann.
43 *Tumor und Trauma. Herzfeld.
44 Zur Chemie des Carcinoms (chemistry). H. Wolff.
45 *Seven Thousand and Eighty-one Cancer Deaths in Life Insurance Company.—7,081 Todesfä au Krebs, von 1885-1899, bei der "Friedrich Wilhelm" Preussischen Lebens- und Garantie-Versicherungs-Aktien-Gesellschaft in Berlin. P. Juliusburger.

39. **Natural History of Cancer.**—Freund remarks that his clinical experience is confirming him more and more in the belief that senilism, in the widest application of the term, is the primal etiologic factor in cancer. The senile changes may be premature or at the normal period; they may be localized in skin, mucosa or glands, or they may be generalized, and they may occur spontaneously and normally or abnormally in these parts of the body. He is further convinced that a local, slow and torpid affection, with mild and insignificant symptoms, may pass into an acutely malignant phase under the influence of depressing circumstances. He cites a number of instances in which an old, mild gastric trouble developed into a rapidly fatal cancer after excessive overwork or overworry. In regard to the curability of cancer, he thinks that we can count on permanent cures after early removal of primary carcinomata in certain regions of the skin, especially on the face, and in case of tumors that have developed from warts or nevi. He also believes that the prospects are better in case of spare elderly patients than for younger persons, especially pregnant women, and that metastases, as a rule, obscure the prognosis. It is remarkable, however, he adds, that the metastatic tumors are so much more amenable to curative measures than the primary growth. Freund further emphasizes the importance of hygiene, of regular habits of life and of avoidance of contact with cancer subjects, which may be dangerous for the predisposed. Spontaneous retrogression of metastatic tumors after removal of the primary focus is also liable to occur. He calls attention again to a method of treating cancer which he published some years ago. It is based on the observation that the individual cancer cells are very short lived. He excludes temporarily the affected limb or organ from the circulation and then tries to flush it through one of its main arteries with an alkaline fluid, washing out the residual blood by a counter opening in one of the main veins. His description of a cancer of the uterus thus treated in 1892 was published in Hegar's *Beiträge*, vol. i, No. 3. He adds that a promising field for cancer research is in the study of the parts most frequently affected with cancer before such growth occurs. Further important results may be obtained from study of the vitality of the cells of various adjacent tissues separated from their environment. Wentscher has already reported research in this line on the persisting vitality of the cells of the rete malpighii in detached scraps of skin. Study of such cells within twenty-four hours after death might also afford interesting results. It is important to study the favorite locating points of cancer in the lymph and blood vessels, as Kroemer and R. Freund have been doing for the uterus.

42. **Chorioepithelioma in Men.**—In the first case the tumor had been extirpated from the right testicle, but numerous metastases were found after death seven weeks later. The nature of the tumors was not absolutely certain. In the second case the diagnosis of chorioepithelioma was confirmed by the microscope. There was a large tumor in the abdomen and various metastases in the lungs. The left testicle contained a teratoma, with proliferation of elements identical with Langhans' cells in chorioepithelioma and with syncytium. These parts represent the malignant elements, and were found predominant in metastases. About 20 analogous cases have been published. In all but one instance the tumors were in the testicles. Dillmann says in conclusion that except for Pick's recent case, no instance is known of the occurrence of chorioepithelioma in women who have never been pregnant.

43. **Tumor and Trauma.**—Herzfeld discusses the history of 54 cases on record in which a causal connection between trauma and tumor seems to be apparent. Complete destruction of tissues is never followed by cancer, but it is liable to de-

velop on healed wounds. He thinks that the causal factors are the separation of some germinal cell thus left free to wander, and irritation of the soil, affording favorable conditions for the wandering germinal cell to settle down and to proliferate independently. Trauma is liable to create both these factors at once.

45. **Study of 7,081 Cancer Cases.**—The 7,081 deaths from cancer formed about 10.6 per cent. of the total mortality recorded by the life-insurance company in question. The particulars are arranged for comparison in tables. They fail to show any marked influence of liquor habits on the prevalence of cancer. There are, further, no data which incriminate trauma. Cancer claimed more victims among the well-to-do policyholders than among the working classes. Of all the causal factors, heredity looms up as the most important. A number of other interesting points are brought out in regard to the frequency of involvement of various organs, age, sex, etc. The proportion of gastric cancers was about the same, a trifle over 40 per cent. in both the well-to-do and the working classes, but with cancers of some other organs the former supplied much the larger contingent.

Nordisches medicinisches Archiv, Stockholm.

Last indexed page 255.

46 (XXXVII, Surgery, No. 1.) *Pararenal Cysts Communicating with Renal Pelvis.—Ueber die mit dem Nierenbecken kommunizierenden pararenalen Zysten. A. Krogius.

47 *Ueber die "Esmarch'sche Blutleere" nach Ungluecksfaellen (tourniquet after accidents). A. Ahlberg.

48 (Surgery, No. 2.) Symbolæ ad morphographiam membri virilis. R. Bergh.

49 Bacterial Relations of Accessory Sinuses and Their Means of Defense Against Bacteria. F. Törne. (Commenced in No. 1.)

50 Hilmatometra im Nebenhorn (in accessory cornu). E. Essen-Möller.

51 (Internal Medicine, No. 1.) *Syringomyelie. H. J. Vellesen and F. Harbitz.

52 *Ovaritis. R. C. Vedeler.

53 (Internal Medicine, No. 2.) *Ueber die Addison'sche Krankheit in Schweden. E. O. Hultgren. (Commenced in No. 1.)

54 Note sur un mucor parasite végétal du cuir chevelu de l'homme (of scalp). E. Buffa (Turin).

55 *Le goutte et le bacterium coli commune (gout). H. Trautner.

46. **Pararenal Cysts Communicating with Renal Pelvis.**—Krogius has found records of 9 such cases and adds another to the list. The cysts were of congenital origin and some had attained enormous size. In all except Fenger's case, the cyst walls were of connective tissue only. Some of the cysts required resection of part of the kidney to remove them completely.

47. **Dangers of the Tourniquet.**—Ahlberg relates three instances of serious injury resulting from the application of the Esmarch bandage to arrest hemorrhage after an accident. In one case the tourniquet had been applied very tightly and left for a day and a half above the severed brachial artery. There had been considerable hemorrhage and the patient, a robust young man, soon succumbed. The fatality may have been due to the acute anemia alone, but there is a possibility that the products of decomposition after ligation of the artery may have induced intoxication of the organism, already enfeebled by the anemia, when the constriction was removed. The tourniquet should never be left long, but should be removed at the earliest possible moment. It should be applied as close to the wound as possible. In 2 of his cases the limb had to be amputated at a much higher point than would have been required by the trauma alone. It should be more generally emphasized that all the parts below a tourniquet left for more than three hours, are exposed to the great danger of tissue death. Another important point to be borne in mind is that the injured part should have all the cleansing manipulations done before the tourniquet is removed. It prevents foreign matters and fluid from being sucked into the circulation, and consequently they should all be cleaned off before the circulation through the parts is restored.

51. **Syringomyelia.**—A pronounced and typical case of syringomyelia in a woman of nearly 60 is described in all its aspects. The anatomic findings are compared with those of a case of cavity formation in the spinal cord, secondary to hemorrhage.

52. **Ovaritis.**—Vedeler contributes his article in English. It is based on 66 cases of ovaritis encountered in 5,903 patients. He restricts the term to a comparatively rare, painful, small swelling of the ovary, generally of the right. It is extremely rare in virgins, most frequent in women who have borne children. It is accompanied by pain in one side of the abdomen, and sometimes by lumbar pain, but without other local or constitutional disturbances. It seems to have no influence on menstruation. The genitals were normal otherwise in only 9 of the 66 cases. Six exceptional cases are described in detail. In one the symptoms suggested ovaritis with recurring dizzy headache, in a patient with complete amenorrhea. The attacks recurred at intervals, growing less intense with years. It is possible that congestion of abortive menstruation may have simulated ovaritis in this case. In a few others the symptoms were evidently of nervous origin.

53. **Addison's Disease in Sweden.**—Hultgren reviews in tabulated form the 59 cases of Addison's disease that have been reported in Sweden. The table includes 3 personally observed. Suprarenal extract was given in a few cases, but only one patient was much benefited. This was a man of 36 who felt "restored to health" after six weeks of daily administration of suprarenal tablets (3x3). He continued to take the tablets now and then for two years, whenever he felt depressed, and always with good effect. The disease at the end of two years became rapidly worse and soon terminated fatally. Temporary benefit was obtained in some of the other cases from iron, arsenic, cod-liver oil and cinchona, but rest for body and mind proved the most successful element in treatment.

55. **Gout and the Colon Bacillus.**—Trautner has been devoting much research to the relations between the colon bacillus and gout. He describes the technic of numerous tests which have conclusively demonstrated, he thinks, that the proportion of uric acid in the urine of a person subject to gout increases during times of partial or decided constipation. He believes that, under the influence of imperfect evacuation of the bowels, a reducing substance is generated by the chemical activity of the ordinary colon bacillus. This reducing substance acts on the residue of the food, and probably has some close connection with the uric acid in the urine. It is more than probable, he affirms, that the substance formed in the colon by the bacteria becomes transformed into xanthin and into uric acid during its passage into the blood. He regards it as probable that the first manifestation of gout is a mucous colitis. The *Bacterium coli commune* is the initial agent of gouty affections. Copious diuresis accompanied by high density should suggest an abnormally large proportion of uric acid. Food containing much animal albumin seems to increase the proportion of uric acid in the urine. In conclusion, he states that the "purin theory" probably has no foundation in fact.

NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

783173 Combined chest and throat protector, Berry A. Brown, Franklin, Ohio.
783280 Surgical bandage cloth, Ella Jagers, Salina, Kans.
783128 Powder atomizer, Romuald A. Oleshak, Philadelphia, Pa.
782878 Pasteurizer, Wm. J. Ruff, Quincy, Ill.
783226 Artificial limb, James E. Seeley, Los Angeles, Cal.
783921 Exercising apparatus for babies, Wm. P. Abell, Duffield, England.
783566 Bed pan, Ashbel P. Barlow, St. Joseph, Mich.
783924 Combined tweezers and blackhead extractor, Frederick J. Boehm, New York, N. Y.
783856 Massage machine, May Chaffin, Huntington, W. Va.
783688 Medicine dropper, John C. Dujat, New York.
783827 Convertible water bag and fountain syringe, Thomas O. Gasaway and J. S. Aydelot, Marion, Ind.
783859 Capsule stopper for bottles, Ewald Goltstein, Cologne, Germany.
783971 Sputum-cup and holder therefor, Christian W. Meinecke, Jersey City, and D. Hogan, Hoboken, N. J.
783466 Artificial limb, Stephan Rosenfelder, Nuremberg, Germany.
784018 Suture-supporting plate, Orville O. Witherbee, Los Angeles, Cal.
783563 Invalid-bed, Luther J. Zuerner, and A. F. Bahra, Jr., Newcastle, Pa.
784024 Dynamo electric massage instrument, Albert Barrett, and W. Condon, Kansas City, Mo.
784399 Medicine spoon, George C. Hohein, Norfolk, Va.
784425 Surgical apparatus, Henry W. Phillips, Norfolk, Va.
784194 Medicine bottle, Fannie S. Victor, Atlanta, Ga.
784830 Medicine spoon, Martin L. Beistle, Ingram, Pa.
784995 Surgical needle, Thomas C. Edwards, Salinas, Cal.
784632 Inhaler, Wm. M. Ricketts, Columbus, Ohio.
784809 Massage apparatus, Eugene W. Schneider, New York.
784643 Massage machine, George F. Trotter, Louisville, Ky.
784645 Inhaler, Hubert L. White, Utica, N. Y.